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ABSTRACT

A manual and software package explain the development and use of the Special Education Survey, an instrument intended to aid states in developing inservice training and professional preparation programs. The instrument is based on the comprehensive system of personnel development as described by Public Law 94-142, the Education for All Handicapped Children Act. Administration of the In-Service Training and Staff Development Needs Survey is explained including selection of survey samples and using the table of random numbers. Further discussion covers advantages and disadvantages of survey research, principal methods of survey data collection, uses of survey data, interviewing methods, the art of asking questions, and questionnaire format. A checklist for writing survey questionnaires is provided. Also considered are accurate measurement, reliability, validity, and sampling. Another section gives guidelines for modifying the questionnaire to meet a state's unique needs. The final section of the manual provides a guide to the SpecEd Data Analysis Software, a data entry and storage system, intended to complement the Personnel Data Collection Instrument. The software allows entering/editing data from questionnaires, analyzing/printing selected data from the data file, exporting data to another software package, copying/deleting the data file, and modifying screen prompts and printout wording. The questionnaire itself is attached. (DB)

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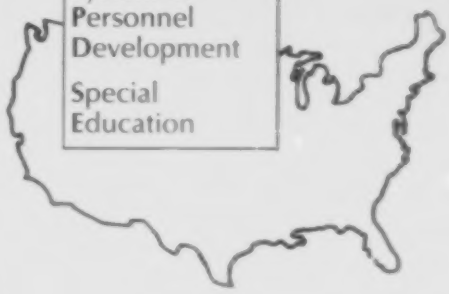

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PANAMS

PLANNING A NEEDS ASSESSMENT MANAGEMENT SYSTEM

Personnel Preparation
for
Special Education Services

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INTRODUCTION

Ernest Bundschuh

The Needs Assessment Management System is the first of four to be produced through this Project. Two copies of each manual will be sent at no expense to each state education agency.

Addressed to the Director of Special Education and the CSPD Coordinator, it is encouraged that the information provided be shared with all groups and individuals responsible for carrying out an effective CSPD plan.

Components of information can be reproduced by the State Education Agency to ensure appropriate dissemination of material.

Each manual consists of:

CSPD GUIDELINES
SURVEY ADMINISTRATION
QUESTIONNAIRE MODIFICATION
USING THE COMPUTER'S SOFTWARE
SURVEY QUESTIONNAIRE
SURVEY SOFTWARE

PLANNING A NEEDS ASSESSMENT MANAGEMENT SYSTEM

PANAMS

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Project PANAMS

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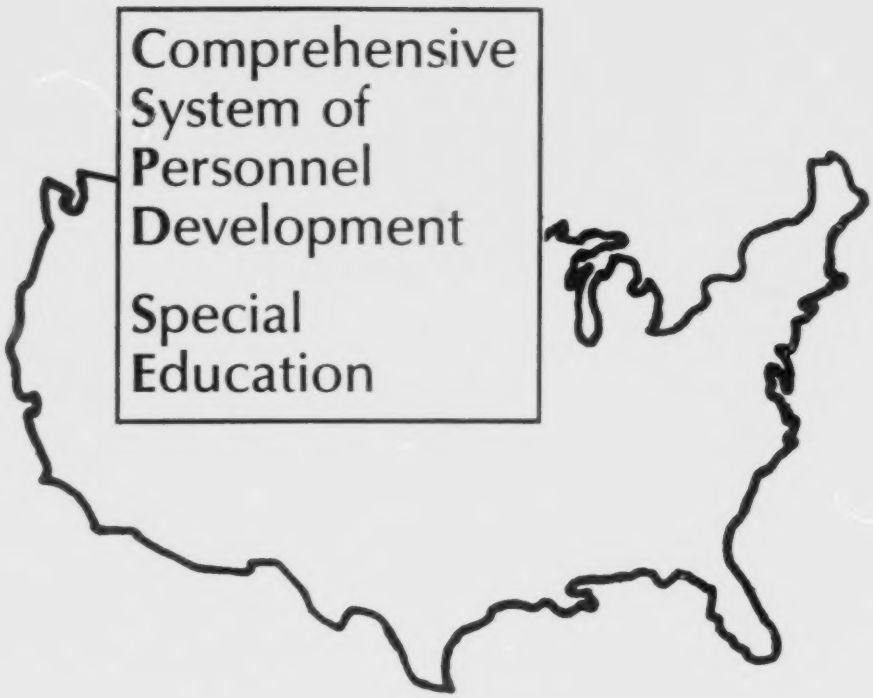
The content of this manual including software was developed as a part of Project PANAMS which was funded by the Division of Personnel Preparation, Office of Special Education Programs. The contents presented herein are those of the authors and do not necessarily reflect the position or policy of the OSEP, and no official endorsement by the OSEP should be inferred.

ACKNOWLEDGMENTS

It is with utmost gratitude and respect that Ms. Martha Bokee be acknowledged. As the Project Officer, Ms. Bokee has worked diligently to ensure the direction and pace of this project. Additionally, the work of the Advisory Board has been one of excellence and has truly served as a "quality control." Thirdly, the work of Ms. Carol Davis, CSPD Coordinator for the State of New Hampshire, and Mr. Bruce Miles, Administrator in Minnesota, cannot be understated. They have assisted us tremendously to ensure that the instrument does work and can be effective in determining training needs of special education personnel serving special education students. Lastly, a special acknowledgement to the CSPD Coordinators across this country who have given their time and support to this project.

Ernie Bundschuh



CSPD

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PANAMS

Funded by the Division of Personnel Preparation, OSEP/USDE, PANAMS is designed to assist all states in performing training needs assessments in Special Education. Under P.L. 94-142 each state is required to outline:

> ...the development and implementation of a comprehensive system of personnel development (CSPD) which shall include the inservice training of general and support personnel, detailed procedures to assure that all personnel necessary to carry out the purposes of this Act are appropriately and adequately prepared and trained, and effective procedures for acquiring and disseminating to teachers and administrators of programs for handicapped children significant information derived from educational research, demonstration, and similar projects. **Federal Register,** Section 121a.380, August 23, 1977.

PANAMS will complete four needs assessment management systems.

The four target groups are:

I. Special Education Personnel

II. Parents

III. Transitional Services Personnel

IV. Special Education Related Personnel

NEED

CSPD state coordinators have agreed that a significant discrepancy exists between federal expectations and states' current CSPD needs assessments status (Manpower Planning Project, regional meetings, 1984-85). A number of states did not have active CSPD Councils or committees, and there was a significant lag in CSPD evaluations. The states also felt that "comprehensive" was missing from their system of personnel development. There is also concern whether special education competencies applicable in urban settings are totally appropriate in rural/remote settings.

ASSISTANCE

CSPD-PANAMS can help solve the identified problems in several ways:

-- Provide a needs assessment instrument targeted at special education personnel, parents, transition personnel and related services. The instrument will assist in determining the specific training areas in which personnel development is needed.

-- Provide computer programs to analyze data gathered from the survey.

-- Assist states with both on-site and electronic/phone communication support of the survey planning and computer programs.

-- Provide a common point for communication. The SpecialNet bulletin board SPEC.ED.NEEDS is available to all state education agencies. The states can use SPEC.ED.NEEDS to communicate with other PANAMS users, PANAMS staff and posting messages of interest. Communication with the staff can be done directly by addressing messages to the user name Project.PANAMS.

IMPLEMENTATION

1. Communicate with project staff about difficulties with the needs assessment process. Solutions will be sought with no expense to SEAs.
2. Use PANAMS systems for identifying personnel training needs.
3. Use the data analysis in reporting needs to DPP, OSERS.
4. Share data with IHEs to ensure accurate information to professional preparation programs regarding personnel training needs in their service area.
5. Utilize data collected to cooperatively plan for staff development/inservice training.

PANAMS will complete a needs assessment management system for each of the four targeted populations. Each management system is comprised of a survey instrument and data analysis software, packaged in a manual that describes strategic planning for valid assessment of training needs as well as instruction for modifying instrumentation to meet individual state unique characteristics.

PANAMS TIMELINE

	Survey	Survey Approval/ Advisory Board	Pilot Test Questionnaire	Software	Manual
1.	Special Ed	Nov., 87	January, 88	April, 88	June, 88
2.	Parent	March, 88	August, 88	Dec., 88	April, 89
3.	Transition	March, 88	August, 88	March, 89	June, 89
4.	Related Services	March, 89	June, 89	Nov., 89	Feb., 90

Technical Assistance and support across 5 manuals-Project termination 8/30/90

DEVELOPMENT OF THE SPECIAL EDUCATION SURVEY

Ernest Bundschuh

A series of activities were undertaken for the purpose of ensuring that the Special Education Survey instrument reflected best practices in the field. The instrument would provide data that could be effectively translated into staff development/inservice training and professional preparation programs to meet the needs of personnel responsible for the administration and teaching of special education students. Procedures followed in the development of this survey are briefly outlined to allow for an understanding of the work leading to the final survey instrument as presented in this manual.

An initial questionnaire was developed and piloted as a statewide survey in Georgia. Modifications of this instrument were made following an analysis of gathered data. Next, state CSPD coordinators from across the nation were requested to send copies of their special education instruments (surveys) for review and for possible incorporation into the initial prototype.

Further activities to ensure a national scope to training needs included a review of funded State Education Agencies and Special Education Professional Preparation grant applications funded by the Division of Personnel Preparation, Office of Special Education Programs, over the past three years. Applications were reviewed to ascertain training needs identified as well as competencies to be developed. A second survey instrument was developed with consideration to revisions from these former activities and then submitted to the PANAMS Project Advisory Board for review. Following revisions as recommended by the Advisory Board, pilot studies were organized in New Hampshire and Minnesota.

A statewide survey was accomplished in New Hampshire utilizing survey strategies established by PANAMS project staff specifically for that state's demographic characteristics. Administrators and special education teachers were surveyed with the results analyzed by townships, regions, and state. A similar survey instrument was utilized in a geographic region of Minnesota. Rather than utilizing established sampling procedures as in New Hampshire, all special education teachers in the region were requested to respond to the questionnaire.

The piloting of the survey instrument led to additional revisions. Perhaps of particular interest was the removal of a dual response protocol; requesting the teacher or administrator to identify not only the level of need for a particular training but also the level of commitment for participation in a training program addressing this need. Analysis of data regarding the dual response format revealed minimal discrepancy. The level of need for training closely matched measure of intent to participate in a training program. (Additional information on pilot study procedures are available from Project PANAMS upon request.)

The next page of this section contains a copy of a cover letter sent to New Hampshire teachers and administrators to solicit their support in responding to the survey. Other states may find this letter to be a useful model in the development of similar survey packages.

DIRECTIONS were folded inside of each questionnaire.

JOHN T. MacDONALD
COMMISSIONER
CHARLES H. MARSTON
DEPUTY COMMISSIONER

STATE OF NEW HAMPSHIRE
DEPARTMENT OF EDUCATION

DIVISION OF INSTRUCTIONAL SERVICES
SPECIAL EDUCATION BUREAU
101 PLEASANT STREET
CONCORD, N.H. 03301
(603) 271-3741

March 30, 1988

Dear Educator;

What additional training would you like to have in order to better serve educationally handicapped students in your program or classes? The Special Education Bureau would like to know in order to make relevant in-service training programs available to you and your colleagues. We ask for your assistance with the attached questionnaire.

Your response to this survey is significant in two ways. First, it will enable the Bureau to accurately assess special education training needs for the first time. Secondly, it will ensure New Hampshire's successful participation as the "pilot" state in a federally supported project designed to assist all states with special education needs assessment. The number of responses needed for each region and type of service provider has been carefully calculated to insure reliable results, and these questionnaires have been distributed accordingly. If you have been selected for participation, we really need to hear from you. Please take a few moments to fill out the survey card, tape it shut and drop it in the mail within a week of the time that you receive it. No envelope or postage is required.

It is important for you to know that the information you provide will only be used after it is electronically aggregated with data from similar respondents. The survey does not ask for your name and your identity cannot be associated in any way with the answers that you give. The survey does ask for information such as type of program and town in which you work, but this information is used strictly for sorting and aggregating data in various ways. You must include this information in order for your responses to be tabulated.

The results of this survey will be important for NH planners, and our solid participation as the pilot state will be of real value to our professional colleagues around the country. If you would like more information about this project or the survey results, send your name and address to me in a separate envelope. Please do not put your name on the survey card.

I would be happy to answer any questions you might have. Please call me at (603) 271-3741 for more information. Thank you for your assistance.

Sincerely,

Carol R. Davis

Carol R. Davis, Coordinator,
Comprehensive System of
Personnel Development

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THOUGHTS ON CSPD

Karl Murray

The CSPD has, as its foundation, Sections 613(a)(3) and 614(a)(1)(c)(i) of Public Law 94-142, "The Education for all Handicapped Children Act of 1975." These Sections call for the "development and implementation of a comprehensive system of personnel development," i.e., CSPD. The fundamental goal of both CSPD Sections of Public Law 94-142 is to adequately and appropriately prepare personnel for implementing programs for all handicapped children and youth.

If students with disabilities are to be provided an "appropriate education," then it is imperative that their teachers, as well as other related personnel, be well-trained, current in their knowledge, and qualified. It is through the development and implementation of CSPD at all levels, that such qualified personnel become a reality. The CSPD exists to facilitate the training of those persons who are working with individuals with disabilities in educational settings.

I believe that the CSPD, at both state and local levels, should be viewed as the "umbrella" that covers and connects all aspects of planning, development, and implementation of personnel preparation, development, recruitment, deployment, and evaluation. Viewed in this manner, the CSPD becomes the critical common thread that binds the myriad of plans, programs, and services across the state that center on personnel quality and quantity.

A major aspect of the CSPD, which has not been attended to in-depth, is the concept of collaboration. In the past several years we have witnessed a genuine revolution in the nature and conduct of groups in organizational settings. Unfortunately, most of us in education have missed it. Collaborative team building is essential to the success of a CSPD. Collaborative groups can make decisions that increase the quality of a particular judgment or complete a task more effectively. In order to achieve the vision in the federal mandate that brought about the existence of CSPD we must model teamwork and collaboration in decision-making and service delivery.

The PANAMS project addresses the needs assessment requirement of the CSPD which is the basis for establishing priorities, and is also the key to the development, analysis, interpretation, and use of information for deriving priority needs and problems, and hence, working to solve those determined needs.

COMPREHENSIVE SYSTEM OF PERSONNEL DEVELOPMENT CONSIDERATIONS

The CSPD outlines needs, plans and activities in both inservice and preservice training. In light of the increasing importance to be placed on the CSPD, several points should be given additional consideration:

1. Participatory Planning
   Personnel providing services to students in special education, including parents, should be represented in the planning and development of the CSPD.

2. Needs Assessment
   Needs assessment studies, setting priorities for preservice and inservice training, should include personnel at all levels of training. Work force data, collected as part of a statewide needs assessment plan, should allow projection of supply and demand needs for three to five years.

3. Preservice Training
   P.L. 94-142 calls for appropriate services to be delivered to students in special education by "qualified personnel." The definition of "qualified" is left to each state and is reflected in certification or licensing regulations. The changing needs of the field must be considered in the revision of preservice programs.

4. Inservice Training
   Personnel providing services to students in special education should be represented in studying inservice training needs in the state. A primary focus of inservice training should be the immediate improvement of the delivery of special education services. A review of inservice training needs should provide information related to quality of preservice programs.

5. Dissemination
   Emphases on identifying, reviewing, and disseminating promising and proven education practices must be included in the CSPD. Dissemination includes a thorough assessment of these practices along with the development of resources for assistance in training personnel. All appropriate disciplines, including parents, should be included in this dissemination network.

6. Evaluation
   The need for evidence of quality programs at all levels of education mandates a strong evaluation component of the CSPD. The overall effectiveness of the CSPD may be judged by the extent personnel training needs are met. Personnel preparation programs (preservice and inservice)must ensure acquisition of valid data for strengthening the CSPD.

7. Technical Assistance
   Designed to provide immediate, intermediate, and long-range responses to those requesting assistance with CSPD. This support includes assistance for increasing planning, management, organizational or program skills. Technical assistance should focus primarily on improvement of program quality, not on monitoring or compliance concerns.

SURVEY ADMINISTRATION

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NEEDS ASSESSMENT IN SPECIAL EDUCATION

SURVEY ADMINISTRATION

Dorothy Kingery

Background

States are required by law to have a comprehensive staff development plan or system for determining training needs which are related to providing special education services. To this end, states must develop and implement a comprehensive system of personnel development (CSPD) which shall include the in-service training of general and support personnel, detailed procedures to assure that personnel are trained and prepared, and procedures for disseminating information acquired from valid sources such as educational research.

The initial effort in establishing a CSPD is toward the research which will provide information necessary for its establishment. Specifically, the CSPD cannot be constructed to address needs and problems in personnel development unless these needs and problems have first been identified. Similarly, the extent to which the CSPD eventually will meet those needs and solve those problems is directly dependent on the quality of the needs assessment research. The most appropriate, unbiased, method of assessing the staff development needs for special education personnel is survey research.

Survey Research

Survey research is considered a major branch of social science research. The procedures and methods of this type of research have been developed and used by sociologists, psychologists, educational researchers, economists, political scientists and others who are interested in seeing that survey research is conducted in a rigorous scientific manner. Currently, survey research is one of the most important basic research methods available. It has also demonstrated its importance as a tool for applied research purposes, particularly in the area of education. The CSPD Needs Assessment Survey uses the methods of survey research as a tool for providing the information states require to implement an appropriate personnel preparation program.

The procedures and methodology of surveys vary in nature. Survey researchers may study large or small populations. They may collect data from every member of a population, or they may sample a part of the population. Rarely, however, is the entire population used. Usually a subgroup, called a sample, is selected for surveying. Surveys conducted in this way are called sample surveys. A well-drawn sample allows a researcher to make inferences about the entire population or universe.

For the CSPD needs assessment a sample will be drawn from the targeted population of special education personnel in the state. Responses from this scientifically chosen sample will allow identification of needs of vital significance for those involved in special education across the state.

SURVEY PROCEDURES

Implementation

State education agencies are responsible for conducting and interpreting results from needs assessments in Special Education. This needs assessment package is designed to provide states with the information to identify and address those needs.

Instrument

The In-Service Training and Staff Development Needs Survey is a questionnaire which can be completed in approximately 15 minutes. It will provide comprehensive information on training needs of teachers and associated personnel. Developed for individual states by PANAMS, a USDE, OSEP, DPP funded project at the University of Georgia, the needs assessment is a valid and reliable instrument that can be administered, completed, and analyzed easily and efficiently.

The needs assessment instrument is designed to be easy to read and complete. It is:

1. Distributed to respondents.
2. Self-administered.
3. Completed in approximately 15 minutes.
4. Easy to analyze and interpret.

The format of the questionnaire should help ensure a high response rate which is necessary for reliable, valid, and useful results.

Privacy and Anonymity

The privacy of the survey respondent's identity and data is critical to the success of the survey. It is therefore essential that the researcher alleviate respondents' fears of being identified by or associated with the information they give.

Participants' privacy may be protected through anonymity, confidentiality, or both. Anonymity is effected by preventing the association of any identifying information with the survey data. Identifying variables include not only names, but any information that is unique to individuals such as addresses, telephone numbers, or social security numbers. Where anonymity is promised the survey coordinator should be able to say truthfully that association of information with a particular respondent is impossible. For the CSPD survey, participants should be allowed to remain anonymous.

Respondents should be convinced that all data collected in the survey will remain private and will only be seen or used by those with legitimate research purposes. Those who will have access to the data must be indicated as well as legitimate reasons for their obtaining the data. If identifiers are to be used on the questionnaire, the dates which these identifiers will be destroyed should be given. It is essential that measures taken to protect anonymity be described and followed.

The following guidelines will help ensure the protection of privacy and anonymity for survey participants:

* Use no personal identification numbers on questionnaires. Although some states will use code numbers (e.g., states surveying by region will assign each region a code number) the identity represented by code numbers should be available only to those for whom it is necessary.

* Select potential respondents randomly, and emphasize the random-selection method in discussing the survey. Convincing respondents that they were selected at random lessens the fear that you are interested in them personally and encourages them to provide open honest answers.

* Stress that data will be combined to describe groups and general patterns. Respondents feel less threatened if they know their responses will be assessed as part of a larger body of information rather that individually.

* Make it clear that participation in the survey is strictly voluntary. The voluntary nature of participation should be indicated in the instructions at the beginning of the questionnaire or in a letter which accompanies the questionnaire.

* Make sure that participants return their own questionnaires. Have those questionnaires mailed directly to the office or agency which will process the data.

Role of the Survey Administrator

The survey administrator plays a key role in determining the success or failure of the needs assessment process. The administrator manages every aspect of the survey. As a manager that person must:

* Act as a liaison with school officials.

* Publicize the survey to ensure cooperation of those selected to participate.

* Establish a timetable for survey tasks.

* Oversee the entire survey process.

Selecting Survey Samples

The most accurate assessment of needs for personnel training can be determined from surveying a representative sample of staff members. While it is possible to survey a state's entire population of teachers and administrators, it is not necessary to do so. A well-drawn sample will accurately reflect the characteristics of the entire population. Thus sample data may be used to generalize to the population as a whole. A good sample will be representative of the system if all members have an equal chance of being selected.

Unfortunately, a well-drawn sample is not enough to guarantee the representativeness of a survey. Not every questionnaire will be completed and returned. The accuracy of the survey, however, is determined by the proportion of questionnaires returned, i.e., the response rate. In part, this response rate will determine how meaningful and useful the results are. Thus it is vital to inform the participants about the survey before they receive it so that they know it is approved and are motivated to answer. Emphasize the survey's importance and inform respondents about their role in the success of the survey. Be sure participants are aware of the survey's subsequent beneficial results to them.

Five steps to derive a good representative sample.

Step 1: Identify the target population.

The major survey group and its subgroups addressed by this Needs Assessment Management System are:

Special Education Services Personnel

1. Special Education Teachers
2. Special Education Administrators
3. Preschool Special Education Personnel
4. Regular Education Personnel (including Vocational Education)

Step 2: Determine size of the population to be surveyed.

The population size is the most recent count of the number employed in each subgroup to be surveyed. If the information collected is to be examined by region of the state, accurate figures for each region must be compiled.

Step 3: Determine size of sample.

Use the following table to determine the total number of people to survey. Sample sizes indicated are derived using a confidence level of 95% and a margin of error of ± 5%.

If the total number of people in your specific group to be surveyed is:	. . . then the percentage of those included in the sample should be:
under 150	100%
151-250	75%
251-500	50%
501-1,000	40%
1,001-3,000	30% (but no more than 700)
3,001-6,000	25% (but no more than 1,200)
more than 6,000	20% (but no more than 2,000)

With samples of these sizes, even a 50 percent response rate will provide an adequate representative sample from each group and will include enough people to determine needs for specific staff training and development.

Step 4: Identify target groups which differ from the general population in specific ways, e.g., Native American groups, and determine their percentage contribution by region, if necessary, to the total population.

Stratification Rule: Divide the number in each target subgroup by the total population to find out what percent of the target population is contained within the group. Multiply the percent of target personnel by the total number to be surveyed. For example: State B has 3 regions. Region 1 has 42% of the state's Special Education Personnel, Region 2 has 30% and Region 3 has 28%. The total sample size is 5,000. Thus, the sample size for each region is: Region 1 = 2,100; Region 2 = 1,500; Region 3 = 1,400.

The state/region sample can be stratified on the basis of the following variables.

(1) The handicapping conditions which comprise certification categories.

(2) Rural/urban area of the state. Districts/systems can be classified by utilizing the 1980 U.S. Census definitions of urban and rural.

(3) Other regions or subgroupings may be identified by individual states.

Step 5: Draw the sample

Source: State Department of Education personnel lists.

Method: Write a simple computer program which will generate a random sample of personnel based on the proportions derived in Step 4 or draw the sample by hand.

Since personnel departments will not usually have an established random sampling procedure in place, the following method should be followed:

(1) Be sure that the list of personnel is complete.

(2) Identify the codes which specify district or system of employment and specialization areas.

(3) Divide the original list into sublists for each subgroup to be sampled. For example, the list may be divided by certification categories, geographic regions, districts, etc.

(4) Working only with staff/faculty who are in one of the categories of interest, assign a number to each staff/faculty member on the list starting with 1.

(5) Use a random numbers table to select the numbers of personnel who will be included in the sample.

Using the Table of Random Numbers*

1. Determine a starting point on the table of random numbers by dropping a pencil point on the table. This will establish a random starting point on the table.

2. From that point you may proceed in any direction. It is often easiest to move directly down the columns. Once you begin you must continue to move in the same direction (i.e., you must move down the column or across the columns).

3. Numbers in the columns have multiple digits. You will use the number of digits in your total sample size (e.g., sample size of 100 to 999 will use the first 3 digits; 1000 to 9,999 will use the first 4 digits).

4. If you come to a number which has already been used or which is out of range (too large), ignore that number. For example, you may have 4,500 names on your list and the next number to be used is 8,692. Ignore that number and continue on the next one.

5. If it is necessary to go through the table a second time, use digits 2, 3, 4, and 5 of the number, i.e., 1 0 4 8 0 = 0480, 2 2 3 6 8 = 2368 the second time.

6. Continue to select numbers until you achieve the required sample size. These numbers will then comprise the sample for your staff survey.

7. Return to the original list and select each name whose corresponding number appears on the list derived using the table of random numbers.

Data Collection

Data collection for the staff survey can be conducted by the school district or in larger states, by regional resource systems. The recommended procedure is to mail the instrument directly to the selected respondent via an internal mail service. An envelope or the survey itself should be affixed with a return address and mailing permit. The returned questionnaires should be mailed by the respondent to a central point for processing.

After the Survey

- The survey administrator may be asked to assist with publicizing findings of the survey.

- Plans for the use of the data should be specified whenever possible.

- Respondents and all personnel who assisted with the survey should be thanked.

- Unwind. The efforts of survey administrators and staff are greatly appreciated.

*See Attachment 1

Table / Random Numbers

Line/Col	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1	10480	15011	01536	02011	81647	91646	69179	14194	62590	36207	20969	99570	91291	90700
2	22368	46573	25595	85393	30995	89198	27982	53402	93965	34095	52666	19174	39615	99505
3	24130	48360	22527	97265	76393	64809	15179	24830	49340	32081	30680	19655	63348	58629
4	42167	93093	06243	61680	07856	16376	39440	53537	71341	57004	00849	74917	97758	16379
5	37570	39975	81837	16656	06121	91782	60468	81305	49684	60672	14110	06927	01263	54613
6	77921	06907	11008	42751	27756	53498	18602	70659	90655	15053	21916	81825	44394	42880
7	99562	72905	56420	69994	98872	31016	71194	18738	44013	48840	63213	21069	10634	12952
8	96301	91977	05463	07972	18876	20922	94595	56869	69014	60045	18425	84903	42508	32307
9	89579	14342	63661	10281	17453	18103	57740	84378	25331	12566	58678	44947	05585	56941
10	85475	36857	53342	53988	53060	59533	38867	62300	08158	17983	16439	11458	18593	64952
11	28918	69578	88231	33276	70997	79936	56865	05859	90106	31595	01547	85590	91610	78188
12	63553	40961	48235	03427	49626	69445	18663	72695	52180	20847	12234	90511	33703	90322
13	09429	93969	52636	92737	88974	33488	36320	17617	30015	08272	84115	27156	30613	74952
14	10365	61129	87529	85689	48237	52267	67689	93394	01511	26358	85104	20285	29975	89868
15	07119	97336	71048	08178	77233	13916	47564	81056	97735	85977	29372	74461	28551	90707
16	51085	12765	51821	51259	77452	16308	60756	92144	49442	53900	70960	63990	75601	40719
17	02368	21382	52404	60268	89368	19885	55322	44819	01188	65255	64835	44919	05944	55157
18	01011	54092	33362	94904	31273	04146	18594	29852	71585	85030	51132	01915	92747	64951
19	52162	53916	46369	58586	23216	14513	83149	98736	23495	64350	94738	17752	35156	35749
20	07056	97628	33787	09998	42698	06691	76988	13602	51851	46104	88916	19509	25625	58104
21	48663	91245	85828	14346	09172	30168	90229	04734	59193	22178	30421	61666	99904	32812
22	54164	58492	22421	74103	47070	25306	76468	26384	58151	06646	21524	15227	96909	44592
23	32639	32363	05597	24200	13363	38005	94342	28728	35806	06912	17012	64161	18296	22851
24	29334	27001	87637	87308	58731	00256	45834	15398	46557	41135	10367	07684	36188	18510
25	02488	33062	28834	07351	19731	92420	60952	61280	30001	67636	32586	86679	50720	94953
26	81525	72295	04839	96423	24878	82651	66566	14778	76797	14780	13300	87074	79666	95725
27	29676	20591	68086	26432	46901	20849	89768	81536	86645	12659	92259	57102	80428	25280
28	00742	57392	39064	66432	84673	40027	32832	61362	98947	96067	64760	64584	96096	98253
29	05366	04213	25669	26422	44407	44048	37937	63904	45766	66134	75470	66320	34693	90449
30	91921	26418	64117	94305	26766	25940	39972	22209	71500	64568	91402	42416	07844	69618
31	00582	04711	87917	77341	42206	35126	74087	99547	81817	42607	43808	76655	62028	76630
32	00725	69884	62797	56170	86324	88072	76222	36086	84637	93161	76038	65855	77919	88006
33	69011	65795	95876	55293	18988	27354	26575	08625	40801	59920	29841	80150	12777	48501
34	25976	57948	29888	88604	67917	48708	18912	82271	65424	69774	33611	54262	85963	03547
35	09763	83473	73577	12908	30883	18317	28290	35797	05998	41688	34952	37888	38917	88050
36	91567	42595	27958	30134	04024	86385	29880	99730	55536	84855	29080	09250	79656	73211
37	17955	56349	90999	49127	20044	59931	06115	20542	18059	02008	73708	83517	36103	42791
38	46503	18584	18845	49618	02304	51038	20655	58727	28168	15475	56942	53389	20562	87338
39	92157	89634	94824	78171	84610	82834	09922	25417	44137	48413	25555	21246	35509	20468
40	14577	62765	35605	81263	39667	47358	56873	56307	61607	49518	89656	20103	77490	18062
41	98427	07523	33362	64270	01638	92477	66969	98420	04880	45585	46565	04102	46880	45709
42	34914	63976	88720	82765	34476	17032	87589	40836	32427	70002	70663	88863	77775	69348
43	70060	28277	39475	46473	23219	53416	94970	25832	69975	94884	19661	72828	00102	66794
44	53976	54914	06990	67245	68350	82948	11398	42878	80287	88267	47363	46634	06541	97809
45	76072	29515	40980	07391	58745	25774	22987	80059	39911	96189	41151	14222	60697	59583
46	90725	52210	83974	29992	65831	38857	50490	83765	55657	14361	31720	57375	56228	41546
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49	95012	68379	93526	70765	10592	04542	76463	54328	02349	17247	28865	14777	62730	92277
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52	18629	81953	05520	91962	04739	13092	97662	24822	94730	06496	35090	04822	86774	98289
53	73115	35101	47498	87637	99016	71060	88824	71013	18735	20286	23153	72924	35165	43040
54	57491	16703	23167	49323	45021	33132	12544	41035	80780	45393	44812	12515	98931	91202
55	30405	83946	23792	14422	15059	45799	22716	19792	09983	74353	68668	30429	70735	25499

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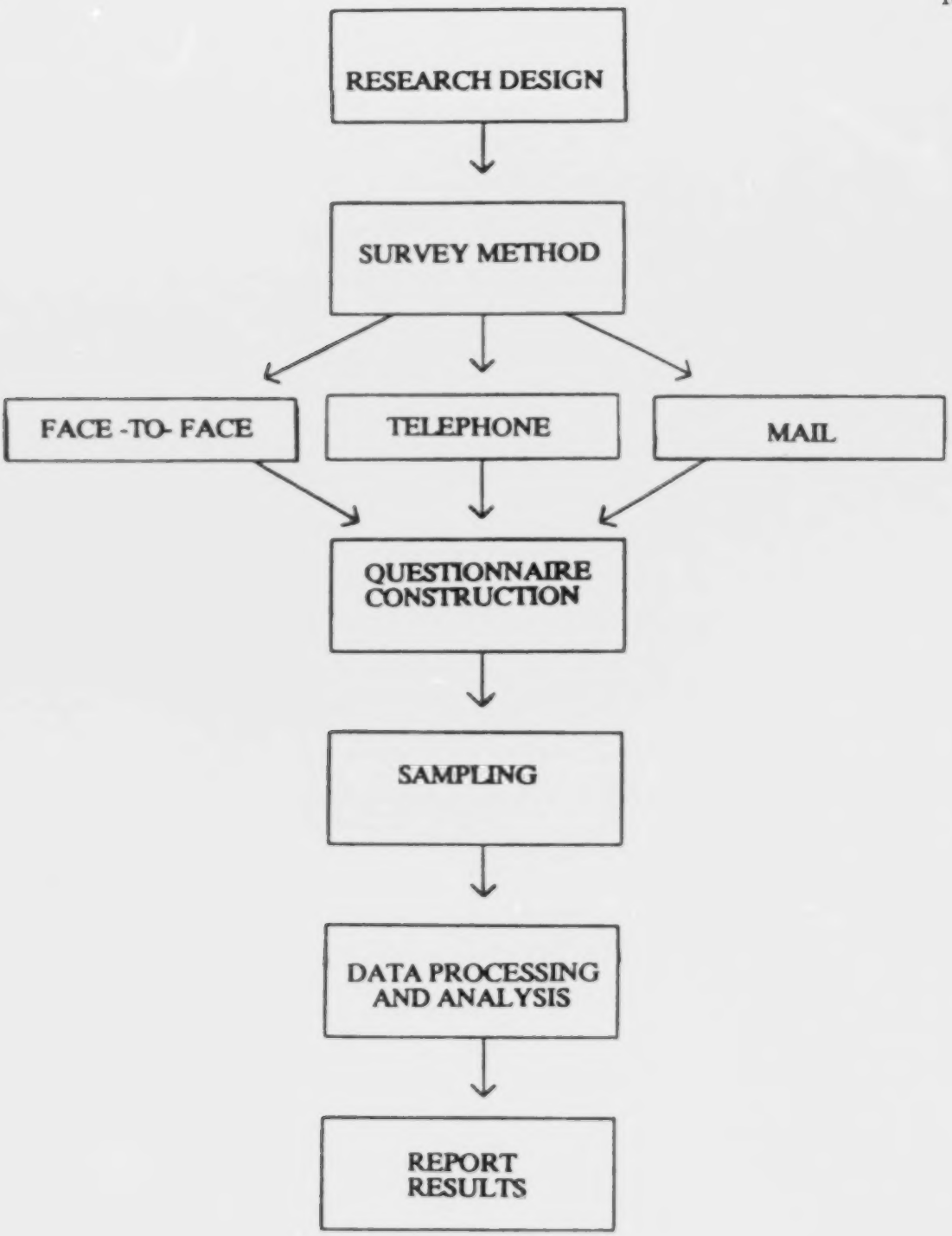
INTRODUCTION TO SURVEY RESEARCH

Dorothy Kingery

Survey research is considered a major branch of social science research. The procedures and methods of this type of research have been developed and used by sociologists, psychologists, educational researchers, economists, political scientists and others who are interested in seeing that survey research is conducted in a rigorous scientific manner. Currently, survey research is one of the most important basic research methods available. It has also demonstrated its importance as a tool for applied research purposes.

The procedures and methodology of surveys vary in nature. Survey researchers may study large or small populations. They may collect data from every member of a population or they may sample a part of the population. Rarely, however, is the entire population used. Usually a subgroup, called a sample, is selected for surveying. Surveys conducted in this way are called sample surveys. A well-drawn sample allows a researcher to make inferences about the entire population or universe. Sample surveys are often used to determine attributes of populations, to examine associations between variables, (e.g., attitudes and age), or to assess needs or expected behavior.

A survey need not survey people. One can survey the use of books, or seat belts. A survey can count trees or automobiles. Most social scientific surveys, however, collect data from people or groups. A survey may either observe or ask questions. Surveys may obtain demographic information such as age, level of education, income and so forth or they may gather information about people's behavior, opinions, attitudes, beliefs, or interests.


RESEARCH DESIGN
SURVEY METHOD
FACE -TO- FACE
TELEPHONE
MAIL
QUESTIONNAIRE CONSTRUCTION
SAMPLING
DATA PROCESSING AND ANALYSIS
REPORT RESULTS

ADVANTAGES AND DISADVANTAGES OF SURVEY RESEARCH

Advantages

1. Survey research allows a researcher to collect a great deal of information.
2. Information can be collected from a large population. For example, a large geographic region or a school system can be studied fairly easily and quickly.
3. Information is collected in a real-world setting rather than in an artificial environment.
4. For the amount and quality of information collected, surveys tend to be economical.
5. Existing facilities and personnel can be used to reduce the costs of the research.
6. Survey data are accurate within the specified sampling error.

Disadvantages

1. Information collected by using surveys usually is not in-depth. That is, the information does not go much below the surface. Still, surveys can result in a good understanding of a problem because of the wealth of data or the breadth of information collected.
2. Surveys do not allow a researcher to manipulate independent variables. This means that there is no controlled variation in independent variables. This disadvantage is most important for academic researchers.
3. Properly conducted survey research is very time consuming.
4. Survey research is subject to sampling error. This means that there is a chance that an error in selecting the sample may occur. It is always a good idea to compare the characteristics of the sample with census data or other outside information. If the sample is similar to known population characteristics, then one can be fairly confident that the sample represents the population. This procedure will cut down on the probability of using biased data which have resulted from an error in sampling or data collection.
5. Survey research requires a great deal of knowledge and sophistication on the part of the researcher.

STEPS TO SUCCESSFUL SURVEY RESEARCH

Sample of surveys provide much of our information about society. They alert us to current trends, provide knowledge of public opinions for use by policymakers, present data on candidates and voting intentions and gauge public acceptability of products as well as people. Though the procedures and methods of survey research are not fixed, there are some general guidelines which should be followed by anyone engaging in this type of research.

1. Research Design

All research should begin with a careful consideration of the research problem. The key to a good research design is to have a firm and clear idea of why there is need to collect information prior to its being collected. How will the information be used and who will use it? Answers to these questions are important in helping one decide how to carry out the research. In some cases the information needed may already exist, or the researcher may be able to use some preexisting information. One additional issue which must be addressed is that of classification and measurement. For example, once the research variables are chosen, the researcher must decide how to sort and how to scale the variables.

For a thorough discussion on these problems, see the section on scaling and measurement.

2. Choose the Survey Method to be Used

Types of Surveys

Surveys may use one or more of the following methods to collect data: face-to-face or personal interviewing, telephone interviewing or mail-out mail-back questionnaires. Each of these methods of data collection has advantages and disadvantages. In order to determine which method is appropriate, the researcher needs to examine the purpose of the survey, the type of questions to be asked, the time frame within which data must be collected, and the amount of money which can be spent on the research.

ADVANTAGES AND DISADVANTAGES OF PRINCIPAL METHODS OF SURVEY DATA COLLECTION

Personal Interview

This type of data collection furnishes in-depth information about the topics of interest. The interviewer has a great deal of control over data collection, thus this is a very flexible means for obtaining data. The rate of non-response for personal interviews is generally very low. The major disadvantage to personal interviewing is its relatively high cost in comparison with other methods. There is also a danger that interviewers will engage in "shadetree" interviewing (fabricate data) or may inadvertently bias responses.

Telephone Interview

No field staff is required. This method is quick, allows extensive coverage of the population of interest and is relatively inexpensive for the amount of data collected. This method also allows control over interviewer bias. Nonresponse is generally low. The major disadvantage is lack of depth in response.

Mail Questionnaires

No field staff is required. This method provides wide coverage of the population. The cost per questionnaire is relatively low. Respondents can answer when it is convenient. There are several disadvantages to using mail questionnaires. One disadvantage of this method is a lack of control over the respondent's interpretation of the questionnaire. Interpretation of data omissions is also often difficult. Since nonresponse is usually very large, cost per return may be high. This method is likely to be the slowest of all.

See the section on Interviewing Methods for more on survey data collection methods.

3. Questionnaire Construction

In developing a good questionnaire, restrain the impulse to write specific questions until you have thought through your research question. This is the major question or questions you would like for the information you collect to answer. For example, your research question may be, "What are the in-service training needs for my teachers and support staff?" Another research question might be, "How are the needs of teachers different from those of the support staff?" Write down your research questions and keep them handy when you are working on the questionnaire. Every time you write a question, ask yourself, "Why do I want to know this?" Answer this question in terms of the way each piece of specific information will help you to answer your research question. "It would be interesting to know" is not an acceptable answer. Even though you this information should only be collected if the answer directly relates to one of your research questions. If "Do we need additional support staff?" is a research question, then information on the number of hours support staff spend

per week on the job is useful in determining the need for adding positions. Before creating new questions, it is always useful to search for questions on the same or similar topics that have been asked by other researchers. Some sources of questions are:

CBS -- New York Times Poll, as indexed in New York Times Index

The Gallup Poll: Public Opinion, 1935-1971 (Gallup, 1972), 1972-1977 (Gallup, 1978) and Gallup (1979; 1980; 1981; 1982; 1983; 1984; 1985; 1986).

Inter-university Consortium for Political and Social Research, University of Michigan, Ann Arbor, Michigan 48106.

See the section on Asking Questions for guidelines to writing good questions.

4. Sampling

A well-drawn sample will allow a researcher to generalize about the universe from which the sample was taken. A universe, or population, is the collection or group of things or people from which one chooses a sample. The question to be asked in defining the survey population is, "From whom is information needed?"

After defining the population, the researcher must determine the sample size needed and select an appropriate sampling strategy.

See the section on Sampling for information on both of these issues.

5. Data Collection

Careful data collection requires attention to detail. Training of personnel who will collect the data must be done thoroughly. Interviewers can be allowed no latitude as to who will be interviewed or how the questions will be asked. All respondents selected must be asked the questions in the same order, using the same terminology. It is essential for interviewers to maintain a neutral attitude during the interview process and all responses must be recorded accurately.

After drafts of the questionnaire are prepared, they must be pretested on a small but representative sample of the population. After pretesting, the instrument is then revised and put into final form before being used for the major data collection phase. Quality control mechanisms must be thought out before the data collection begins and must be used throughout the term of the project.

6. Data Processing and Analysis

A large part of the data plan is analytical. This entails the coding and tabulation of responses to questions. Response codes are usually entered into a data set using either a personal computer or a mainframe program. Before analysis can begin, data must first be checked to ensure that there are no errors present. Data cleaning (removing errors) requires skill and attention to detail. Only after data have been cleaned may a researcher conduct data analysis.

The type of analysis a researcher performs depends upon the type of research question which is being answered and on the method of data collection. Some studies use only descriptive analysis. A good descriptive analysis presents the data in a form which is easy to understand and use. For example, data may be presented in separate tables or graphs for each idea which is being communicated. This type of presentation may be used to present characteristics of the population, i.e. the percent male/female; age or education categories.

Another type of simple data analysis is a test for the existence of relationships between variables. Cross tabulation techniques may be used for this test. For example, one may be interested in the percent of men who answered yes to a question and the percent of females who responded in the same way.

Analysis may also characterize the form of an association. Associations may be investigated by (a) using a test of statistical probability to determine whether any relationship exists between variables; (b) determining the specific type of relationship (these relationships are easily displayed on charts or graphs); (c) evaluating the strength of a relationship, or (d) determining the degree of causal relationships between two variables. In examining variable relationships we find that variables may be associated in several ways. Associations may be characterized as positive or negative, linear or curvilinear. For example, the association of income to education may be positive and linear. This means that as income increases, education increases. In order to be linear, the relationship must be capable of being drawn on a straight line. (See Figure 1.)

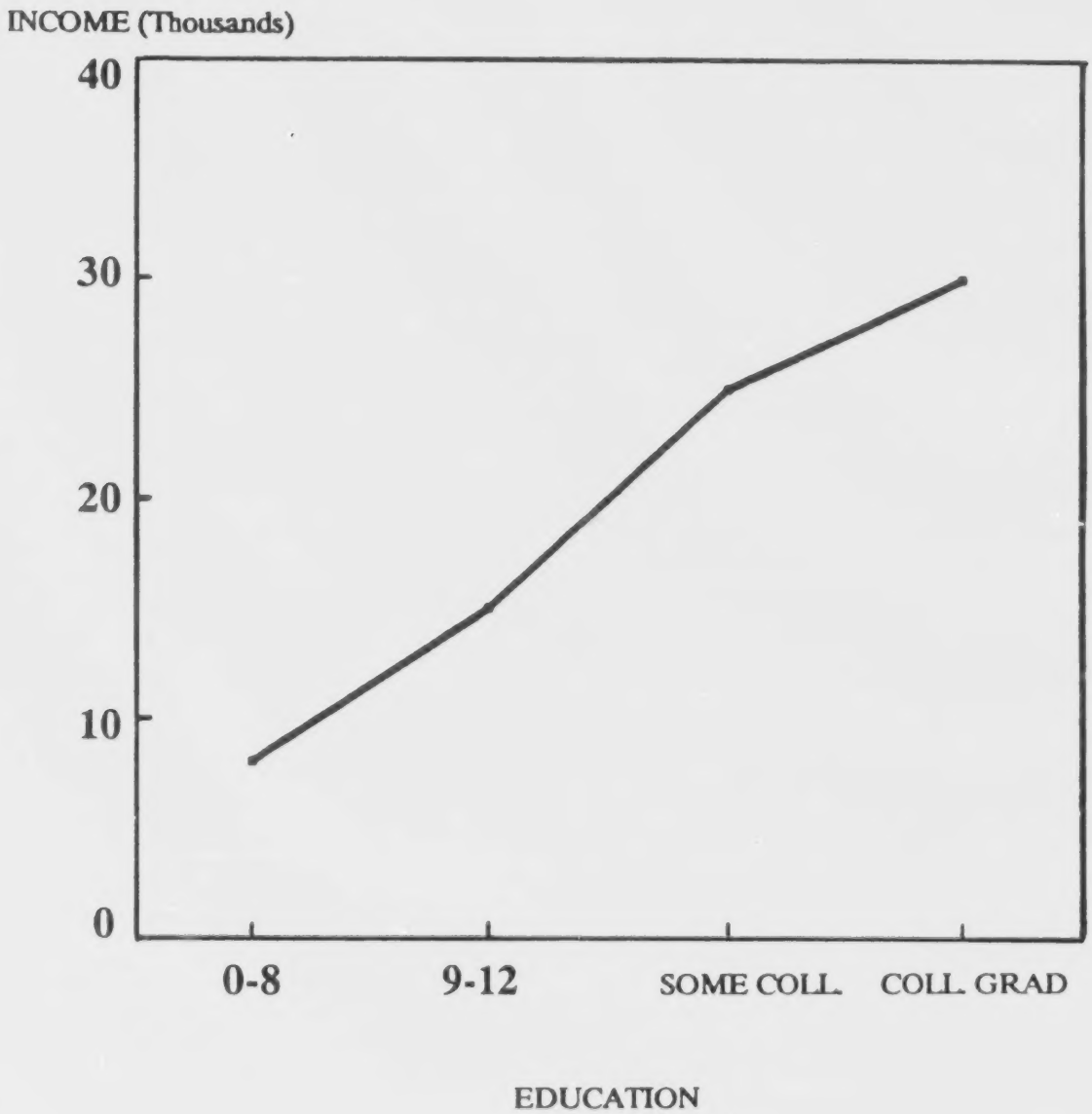
Complex relationships or causal relationships are usually investigated by using a variant of regression analysis. Multiple regression is a common analytical technique. It allows a researcher to assume that if there is a relationship between variables, one of the variables causes the other. Not all associations, however, should be interpreted causally. For example, eye color may demonstrate an association with a number of variables without causing them to occur.

7. Report

The final stage of a research project is reporting on the results of the findings. An important issue in this stage is how much to generalize from the data and the degree of certainty in drawing conclusions. The margin of error used in determining sample size is one guideline in determining that degree of certainty. Many researchers choose to use a $\pm 5\%$ margin of error at a 95% level of confidence. This means that if 50 percent of a sample gave a certain response to a question, we can be 95 percent certain that between 45 and 55 percent of the population as a whole would give that same response. This expected error decreases as the sample proportion approaches 0 to 100.

It is important to be precise, specific and concrete when dealing with survey findings. In general, if a study has been well planned and conducted, it will be valid. Thus the results it yields are reliable answers to the questions(s) which the study addresses.

LINEAR ASSOCIATION BETWEEN INCOME & EDUCATION



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HOW CAN YOU USE SURVEY DATA?

Survey: A research method in which a population or a sample is studied in order to learn specific facts about it.

Help! I need to do a survey in a hurry.

Help! Now that I've done that survey, what do I do with the information??

EVALUATION or How well are we doing?

1. In general, how do people view the job we are doing?
2. Specifically, how do certain groups view us? (Property owners vs. Non-property owners; Men vs. Women; Parents vs. Nonparents, etc.)
3. How are the separate parts of our program (operation) evaluated?
4. How are the different personnel groups in our program evaluated? (Administrators, teachers, service personnel and support staff may be evaluated differently.)
5. How do certain groups evaluate their relationship with us?
6. What do we do best?
7. Where are our problem areas?

These and similar questions will provide information on what (and who) is operating well and what needs assistance. They may also furnish information on aspects of our operation which need some public relations attention.

NEEDS ASSESSMENT or What do our people need to help them get the job done?

1. What specific kinds of training do our people feel they need in order to do their jobs better? When, where and how should this training occur? Who will benefit most from training?
2. What facilities, equipment or other resources are needed? Where are they needed?
3. How can we motivate people to do their jobs better?

POLICY GUIDE or What kind of guidelines do we need to put into place?

1. Are changes occurring which are not presently covered by guidelines?
2. Are there situations for which adequate guidelines are not presently available?
3. Are there areas for which existing policies are more problematic than helpful?

GUIDE FOR FUTURE PLANNING or Where do we want to be one year (5 years) from now?

1. What are our goals?
2. Do all of us share common goals?
3. What are the priorities we place on these goals?

GUIDE FOR FUNDING or How? and Who? Do we ask for money and How do we spend it?

1. Do we have information which will help us justify asking for funds for this program, equipment, position? (Yes, your needs assessment data will help you justify the request for that person, computer, etc.)
2. What are the alternative sources of funds for this need? (Tax money, grant support, local fund raising, etc.)
3. Which groups support each type of funding?

INTERVIEWING METHODS

When circumstances call for a survey, one of the first considerations is the interviewing method to be used: face-to-face, telephone, or mail. Each method has strengths and weaknesses which must be considered in relation to the study topic, the population to be surveyed, the objectives of the research, the amount of money available for the project, and the constraint of time.

Face-to-face Interviewing

As its name implies, the face-to-face method involves an interviewer who interview the respondent in person. Face-to-face interviewing (also called personal interviewing) has been the traditional survey method utilized by social scientists. Until recently, the face-to-face method was the only one of the three which could reliably obtain a representative sample of the general population. One factor contributing to the representativeness of a sample is the response rate: if the response rate is too low, the data may not be representative of the population as a whole. In the past twenty years face-to-face survey response rates for major survey organizations have declined from 80 -85% in the mid-1960s to 60 - 65% in 1973. This falling response rate coupled with positive developments in the telephone survey method is giving researchers second thoughts about considering face-to-face interviewing to be the superior method.

Two major disadvantages inherent in face-to-face interviewing are its costliness in terms of money and time. Not only must interviewers and supervisors be hired and trained, they must also travel to the respondents. Many trips may be made before the respondent is contacted and the interview is ultimately completed. The additional expense of the transportation itself combined with these factors can make face-to-face interviewing the most expensive of survey data collection methods. Traveling time required for multiple attempts at contacting respondents may cause data collection to extend beyond the estimated time schedule.

In general, face-to-face surveys take much longer than telephone surveys and about the same amount of time as mail surveys. If money and time are not constraints, the researcher may prefer the face-to-face method because it allows for a longer, more in-depth questionnaire to be completed than does the telephone or mail interview. Face-to-face interviews with the general public that run over one hour in length are routinely conducted with interview lengths as long as 7 hours. Such marathons would hardly be possible by telephone or mail.

Questionnaire construction for face-to-face surveys will generally be the same as for telephone surveys, with the exception that longer and more complex questions can be asked on face-to-face interviews. Questions that depend on maps or diagrams can also be used, whereas they cannot be for telephone interviews.

The face-to-face survey may sometimes produce inaccurate results due to the phenomenon of social desirability response. That is, answers that the respondent gives are ones believed to be acceptable among people whose approval the respondent values. For example, in a survey of physicians concerning the reading of medical journals, one researcher found that face-to-face interviews yielded more than twice as many socially desirable answers as did telephone interviews. It has been found that face-to-face interviews produce the most socially desirable responses, telephone surveys produce less (presumably because the interviewer is more distant), and mail surveys produce the least.

To summarize the advantages and disadvantages of face-to-face interviews: the face-to-face method is able to obtain a representative sample, the questionnaire can be very long and complex questions may be used; however, the cost is high, and the entire survey will often be very time consuming. Another disadvantage of the face-to-face survey is that among the three methods, it has the highest probability of producing social desirability bias.

Telephone Interviewing

Telephone surveys were rare until the 1960s; before that time the percentage of homes with telephones was too low to provide a representative sample. That percentage has steadily increased, and in the 1980s in most states of the U.S. 95% or more of the homes have telephones. Response rates for telephone surveys are comparable to those of face-to-face surveys. The Survey Research Center at the University of Georgia usually has response rates of 70 - 75%, which is average for may professional telephone survey organizations. The high percentage of phones in homes and high response rates both contribute to representativeness of the sample for the general population.

Telephone surveys lend themselves well to either random samples or identified samples. A sample cannot be considered representative of a population unless it is selected randomly; that is, all members of the population have a known chance of being included in the sample. In a telephone survey of the general public, this can be accomplished in two stages: first, randomly choosing phone numbers, and second, using pre-established criteria for selecting the respondent from the household. If pre-established criteria are not used, the researcher might end up with information only from those people who are most likely to be home, such as homemakers or elderly people.

An identified sample is a group of respondents drawn from a specific population. An example of an identified sample surveyed by the Survey Research Center at the University of Georgia was users of NASA developed software. Another identified sample surveyed was attorneys who handle workman's compensation cases. In each survey, the specific group served as the population from which the sample of respondents was drawn.

The cost of telephone surveys is less than that of face-to-face surveys, even with the addition of phone tolls. During the fall of 1987 at the Survey Research Center at the University of Georgia, a survey was conducted with a sample drawn from the general population of Georgia using an interview that averaged 20 minutes in length. The telephone interviewers spent an average of 23 minutes out of each hour conducting an interview, that is, the interviewers spent 38% of their work time conducting interviews. To contrast, in a face-to-face survey, interviewers would

have spent no more than 5% of their total work time actually conducting the interview because such a great amount of time would have been consumed in traveling to the respondent. Telephone interviewing is less costly than face-to-face interviewing, but both methods have the expense of training and employing interviewers and supervisors. Thus telephone surveys, as well as face-to-face surveys, are more expensive than mail surveys.

From the example in the preceding paragraph, it can be seen that telephone surveys generally take less time to conduct than face-to-face surveys. A telephone survey produces very quick results; therefore, if time is of the essence, a telephone survey may be preferred. Usually the time it takes to conduct a telephone survey is much less than the time to conduct a mail survey. But in some cases, the time spent might be equal: for example, if the sample is a very large one (say 3,000 or more) and the survey organization employs only 10 telephone interviewers per 8-hour day, then the telephone survey would probably take as long as a mail survey, if not longer.

When constructing the questionnaire for telephone surveys, the researcher must keep in mind that only questions which can be communicated vocally with ease should be used. Very complex questions, questions utilizing diagrams or maps, and questions that require in depth probing are not appropriate for the telephone interviewers will need careful training to probe if necessary in order to obtain complete answers.

Both face-to-face and telephone surveys depend on interviewers to collect the data, and interviewers must be carefully trained and supervised. Primarily, interviewers must be professional but friendly. They must read the questionnaire exactly as it is written, and must not explain terms on the questionnaire unless instructed to do so by the researcher. Interviewing is a rigorous job, and not everyone makes a good interviewer. However, a complete training program and on-the-job monitoring, evaluating, and guiding of interviewers by supervisors will ensure that data collection is of the highest quality.

Telephone surveys have many advantages: representative samples can be drawn, response rates are high, the time required to complete them is usually short, and the cost is less than that of face-to-face surveys. On the other hand, telephone surveys do not lend themselves well to lengthy interviews (a maximum length of 20 - 30 minutes is best), they are more costly than mail surveys, and they do not involve the extensive training of interviewers and supervisors. Many survey research organizations are increasing their use of telephone surveys, however, because of their many important advantages.

Mail Surveys

Mail surveys are self-administered by the respondent. The questionnaire is mailed to the respondent and the respondent completes the questionnaire and returns it.

It is difficult to obtain a representative sample using a mail survey because the response rate is usually so low. Often the return is no more than 10% if the survey is one of the general public. However, response rates can be very high if the sample is an identified one (a specific group), or if the subject is one about which people feel strongly. For example, a mail survey done of the general public in Texas, concerning crime victimization obtained a response rate of 84%.

Mail surveys are usually much less costly than either face-to-face or telephone surveys for the simple reason that interviewers and supervisors are not hired. Also, mail costs are cheaper than either telephone tolls or interviewers' travel. Mail surveys can be very time consuming. The data collection phase usually takes much longer for mail surveys than for telephone surveys. Face-to-face and mail surveys may average similar time length from start to finish.

Questionnaires for the mail interview must be carefully constructed so that the respondent knows what to do. Questions can be somewhat complex, since the respondent has the opportunity to read the question as many times as needed. Likewise, questions with diagrams or maps may be used. Open-ended questions may also be included, although they often are not answered adequately by respondents on mail surveys. Many people do not like writing long answers or feel that they cannot express themselves adequately in writing.

Example

The three methods could each illicit different information using the same question. The table and explanation below describe the different kinds of information each method could obtain from the question "What do you think are the greatest problems facing schools today?"

Question type	Face-to-Face Open-ended	Telephone Partially	Mail Open-ended
Precoded responses	No	Yes	Yes
Interviewer may probe	Yes	Yes	No
In-depth response expected	Yes	No	No
Respondent can rank responses	Yes	No	Yes

Face-to-face. The question is entirely open-ended (no precoded responses are necessary) and the respondent has a chance to explain fully. The interviewer is trained to probe for in-depth responses. Follow-up questions may be used, such as "What is the greatest problem facing local schools today?"

Telephone. The question is partially open-ended; that is, precoded responses are used. Telephone interviews need to be succinct, and precoded responses save time. An "other" category is provided for responses which do not fit into one of the precoded categories. Precoded responses might be (1) overcrowding, (2) lack of funding, (3) drug use among students, (4) violence, (5) lack of discipline, etc.

Mail. Since respondents often do not wish to write lengthy answers, precoded responses should be provided, along with an "other" category. Directions given in the questionnaire might instruct the respondents to rank their answers using 1 = most important, 2 = next to most important, etc. The respondents would have the leisure to go back and rank their responses. For instance, if a respondent checks overcrowding, lack of funding, and violence in answer to the question, he or she might rank the responses by putting 1 (in a blank provided) beside lack of funding, a 2 beside overcrowding and a 3 beside violence.

THE ART OF ASKING QUESTIONS: DESIGNING A SURVEY QUESTIONNAIRE

The heart of the survey is the questionnaire, and the basic element of the questionnaire is the question. The questions asked must be capable of eliciting answers which will provide the kind of usable information needed by the researcher. The novice may be surprised to discover a fact that survey practitioners have known since the early days of surveys: small changes in the wording of questions can cause large changes in the results. If the survey is to provide accurate, valid, and meaningful information, it is crucial that the researcher properly construct the questionnaire. The questions must be drafted with great care, and the researcher should be familiar with the guidelines outlined here. A checklist is provided at the end of this chapter to assist the writer of a survey questionnaire.

Researchers must first identify and clarify the objectives of their study; the purpose of the study must be clear before meaningful questions can be asked. Two things that can help in this task are (1) a literature search and (2) contact with the population to be surveyed. An exhaustive literature search should be conducted to establish what work has already been done, what aspects need further investigation, and how the present survey can add to what has already been discovered. Researchers will also find it very helpful to have some contact with the population intended for the survey. Exploratory conversations with a few representatives of the group may open the researcher's eyes to faulty preconceptions concerning the present survey. One might waste a great deal of time wording a particular question only to find that the entire concept is irrelevant to the group to be interviewed, and conversely one might discover deep concerns that have been overlooked. Employing these efforts, researchers should be able to outline the kind of information needed from the survey instrument. If the services of a professional survey research organization are to be engaged, it is essential to inform the survey research staff of the exact information desired. Only then can questions be drafted that will provide the appropriate data.

Writing questions is actually more of an art than a science. For example, five different researchers could be given the same research objective and yet write five different questionnaires, all of which could be valid. Each of those five questionnaires would have certain things in common, however, for as in any art, there are guidelines which usually should be followed.

(Experienced investigators know that there are instances when it is valid to trespass the boundaries of the guidelines, but that is beyond the scope of this chapter. References are provided for those desiring more information on the subject.)

Question Structure

Survey research employs two basic structures for questions: open-ended and close-ended. The close-ended question has precoded responses, for example:

> Do you own your home?
>
> 1. Yes
> 2. No

Close-ended questions should provide answers that most respondents would wish to give, and the answer categories should be mutually exclusive and exhaustive. That is, response categories should not overlap, and they should include all categories for all possible responses. If the above question were on a telephone or face-to-face survey, additional categories would be present for the use of the interviewer: refused, don't know, and not ascertained. These three responses along with the two given with the question would cover every possible response that a respondent might give.

Sometimes close-ended questions have graded responses, that is, responses that present the range of answers from favorable to non-favorable. For example:

> In general, how satisfied are you with the library services in your town? Would you say. . .
>
> 1. Very satisfied
> 2. Satisfied
> 3. Dissatisfied
> 4. Very dissatisfied

Close-ended questions are often preferred because they allow the researcher to statistically compare many individuals with each other.

Open-ended questions are those that are answered in the respondent's own words. An example of an open-ended question is: What are your actual duties in your place of work? Space would be left beneath the question for the response to be written in. The responses from open-ended questions can be categorized and tallied, and thus made more meaningful. In the example above, the responses could be categorized as clerical, sales, managerial, etc. This process of recording the answer and then categorizing it makes open-ended questions more time consuming (and thus more costly) than close-ended questions because the interviewer must record the answer (on the telephone and face-to-face interviews) and the researcher must translate responses into appropriate categories. This process also provides much room for error; the interviewer might improperly record the response, or the researcher might place the response in a category which does not reflect the spirit of the respondent's answer. An advantage of the open-ended question is that it does allow respondents the opportunity to express themselves adequately, whereas the close-ended question may not. Open-ended questions are primarily used (1) for exploratory surveys to provide the researcher with relevant information from which

to devise close-ended questions, (2) to help sustain rapport on a long questionnaire by providing respondents with a chance to fully express themselves, or (3) to elicit from the respondents their frame of reference (what is most salient to them) concerning the subject.

Open-ended questions can be partially close-ended, and thus more cost and time-effective. The questionnaire writer provides reasonable precoded answers, but respondents may create their own response category if their answer does not fit into one of the precoded responses. For example:

Think for a moment about political parties in this country.
What do you consider yourself to be?

1. Republican
2. Democrat
3. Independent
4. Other (please specify) _____

The precoded responses provide the researcher with categorized information, and the "other" response allows respondents whose answers don't fall into the pre-coded list to provide the needed information. Because the precoded responses cover most of the categories that would be mentioned by respondents, there is far less room for error than would occur if the question were totally open-ended with no precoded responses.

Question Wording

In addition to choosing a proper structure, great care must be taken with the wording of the questions. Confusion, misunderstanding, lack of comprehension, and response bias can all be avoided by well written questions. The researcher must keep the following guidelines in mind when drafting the questions.

1. Questions must be as short as possible. Complex questions and questions with more than one part must be broken down into manageable elements. Short questions provide better data than lengthy ones.

2. Keep the vocabulary and sentence structure simple. The researcher must keep in mind the general education and experience of respondents in the sample. Each question must be understandable by the majority of the people to be interviewed. Scientific or literary terms, although precise and accurate, are often not the best choices for obtaining data representative of a particular population. For example, if the researcher surveying farmers might ask the question: Do you have a problem with Ambrosia trifida? More than likely, farmers would be baffled by the question and answer "don't know" or, worse, give answers that they thought the interviewer wanted. The data is then either lost or invalid. Researchers should be familiar with the lives and language of the people to be interviewed before ever drafting the questions. In order to gather valid information, the question in the example above should use the common name used by farmers: Do you have a problem with ragweed?

3. Questions should have a neutral tone with no right or wrong answer suggested. A question which suggests one particular response will likely influence the respondent's answer and is referred to as a biased or loaded question. A loaded question makes it difficult for the respondent to give other than a particular response. An example of a biased question is: Do you think the President has a good economic plan? Such a question will elicit more approval than if the question were asked without the suggestion of a positive answer: How would you rate the President's economic plan? Would you say it is. . . .

    1. Excellent
    2. Good
    3. Fair
    4. Poor

The reworded question is neutral in tone, it suggests no particular answer, and a reasonable range of responses is provided.

4. Questions should ask only one thing at a time. Single questions that ask for opinions on two different things are called double-barreled questions and should be avoided. For example: Do you think public health departments should provide free health services including AIDS testings and prenatal care? If respondents want prenatal care provided as a free service but not AIDS testing, they are unable to reply. The question would be better if broken into two parts.

5. Be as specific as possible. Avoid vague or ambiguous wording. Consider the question: Do you visit art museums? Does this question mean, have respondents ever visited art museums, do they regularly visit art museums, or what? To be more specific, the question could be worded: How many times during the past year have you visited art museums?

6. Response categories should be mutually exclusive. If it is possible to agree with more than one alternative, then the question provides overlapping alternatives and should be reworded. Do you buy books in a bookstore, or do you get them from the library? This question offers two basic response categories and the respondent could agree with both of them. It's not clear from the question what information the researcher wants, and without knowing that it is difficult to devise a better way to ask the question. One alternative might be: During the past year, have you read more books from libraries or from bookstores?

7. Questions which employ double negatives are awkward and extremely difficult to answer. Questions containing double negatives will not provide good data and should be avoided.

Question Sequence

After questions are drafted using the above guidelines, they should be put in a logical sequence. Questions should flow from one to another and should be grouped by topic. Transitional sentences will ease the change from topic to topic within the questionnaire. It is wise to make the first question easy and not threatening. More sensitive questions should be in the middle of the questionnaire or near the end, occurring after good rapport has been established. Thought should be given to whether a particular question will bias responses to following questions.

Sometimes it is necessary to ask questions of some respondents, but not others. These questions will need to be skipped by the respondents to whom they do not apply. The researcher should keep the skip patterns as simple and as logical as possible in order to minimize error.

Questionnaire Format

Once the questions are in order, the questionnaire must be formatted. In general, items should be well spaced; the questionnaire should not appear crowded. For telephone or face-to-face interviews, directions to interviewers should be put in all capitals or underlined to differentiate them from the text intended for the respondent. Usually the right margin is used to provide space for the responses to be coded. An example of three questions formatted for a telephone or face-to-face survey:

Q1. DO YOU HAVE SCHOOL-AGE CHILDREN LIVING WITH YOU?

1. Yes
2. No **[SKIP TO Q3]**
3. Refused **[SKIP TO Q3]**
4. Not ascertained **[SKIP TO Q3]** Q1____

Q2. DO THESE CHILDREN ATTEND . . .

1. Public school
2. Private school
3. Home school

[DO NOT READ FOLLOWING RESPONSES]

4. Other (Please specify) _____
5. Do not attend school
6. Inappropriate to ask **[Q1 RESPONSES = 2, 3, OR 4]**
7. Refused
8. Not ascertained Q2___

Q3. HOW LONG HAVE YOU LIVED IN YOUR PRESENT HOME?
[DO NOT READ RESPONSES]

1. Less than 1 year
2. 1 to 5 years
3. More than 5 years
4. Refused
5. Don't know
6. Not ascertained

Q3___

Pretest

Now that the questions are drafted, put in order, and formatted, the questionnaire is ready to be pretested. At least 20 interviews should be completed with representatives of the population to be sampled. Do not pretest with family, friends, or co-workers. A minimum of two interviewers should work on the pretest, and they should make careful notes on all problems encountered including awkward phrasing, questions misunderstood, responses given but not precoded on close-ended questions, etc. The researcher should debrief the interviewers, carefully consider the results of the pre-test, and make appropriate revisions.

In summary, the writing of a questionnaire involves five basic steps: (1) identifying the purpose of the study; (2) drafting questions which will contribute valid and meaningful information to the study; (3) arranging the questions in a logical sequence and formatting the questionnaire; (4) pretesting the questionnaire; and (5) revising the questionnaire. These five steps and the guidelines given in this chapter provide a framework for the survey questionnaire writer to follow. These methods have proven very useful to researchers, but they are not hard and fast rules. There remains much that is not known about how questions affect respondents or what questions are best for particular situations. For the investigator who has little or no experience with survey research, this chapter provides an introduction to questionnaire construction and warns the novice of established pitfalls and common errors. Those who are involved in writing a survey questionnaire are encouraged to make use of the following checklist, as well as the bibliography.

CHECKLIST FOR WRITING SURVEY QUESTIONNAIRES

If the answer to any of the following questions is "no," revision will be necessary unless the researcher can reasonably justify not following the guideline. Questions 1 - 9 are to be asked of each survey question. Questions 10 - 14 pertain to the order and format of the questionnaire.

1. Is the question capable of obtaining the desired information?
2. Is the structure either close-ended or open-ended?
3. For close-ended or partially close-ended questions: are precoded responses provided which include categories for all possible answers that respondents might give? Are the responses mutually exclusive (do not overlap)?
4. Is the question as short and simple as possible?
5. Is the vocabulary appropriate for the group to be surveyed?
6. Does the question have a neutral tone with no particular answer suggested? Does it avoid bias?
7. Does the question ask only one thing? Does it avoid being double-barreled?
8. Is the question as specific as possible? Does it avoid vague or ambiguous wording?
9. Are double-negatives avoided?
10. Are skip patterns as simple and logical as possible?
11. Do questions that may be skipped have appropriate directions?
12. Are the items well spaced on each page?
13. Are instructions clear? Have the instructions been differentiated from the questions in some way (by putting them in all capital letters or underlining them)?
14. Are appropriate blanks provided for coding the questionnaire?

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ACCURATE MEASUREMENT

Survey Research allows us to examine and compare characteristics of groups. Although individuals respond to questionnaires, it is the aggregation of information obtained from all respondents that allows us to draw conclusions about groups; and for data to be aggregated the variables of interest must first be measured.

The purpose of measurement in survey research is to provide quantitative descriptions of the extent to which particular characteristics are present in the population of interest. In other words, measurement allows us to turn attitudes, opinions and other psychological variables into numbers. Obtaining usable data and making correct inferences based on those data require a basic knowledge and understanding of: (1) constructing units of measurement (scaling), (2) judging the self-consistency of the questionnaire (reliability), and (3) ensuring that the survey instrument really measures what you intend it to measure (validity).

Scaling

The term scale is used in two senses in social science research. At its most basic level, a scale consists of the number into which answers to a particular question are translated. This type of elemental scale is also known as single-term measurement. For example, if we were interested in measuring attitudes toward public transportation, the question "How satisfied are you with public transportation in this city?" might utilize the following response categories: very dissatisfied, dissatisfied, slightly dissatisfied, slightly satisfied, satisfied, very satisfied. The corresponding numerical scale would range from 1 (very dissatisfied) to 6 (very satisfied) so that greater amounts of satisfaction would be indicated by higher scores on the item.

The alternative designation of the word scale refers to something more complex. In this sense, a "scale" is created by having respondents answer many different questions all designed to measure a single dimension. These answers are then combined in a predetermined fashion to produce a score on the variable of interest. The scale, then, refers to the questions addressing the dimension of interest along with rules for determining a particular score. This type of scaling is also known as index construction.

One dimension which index construction has been used to measure is job satisfaction. Rather than directly asking the respondent a single question - How satisfied are you with your job?, the researcher instead asks several questions that indirectly gather information concerning job satisfaction: "I look forward to going to work each day"; "It would take a lot to make me change jobs"; "I don't enjoy the type work I do." Respondents would indicate agreement/disagreement to each of these statements using, for example, a basic five point scale: (1) strongly disagree, (2) disagree, (3) neutral, (4) agree, (5) strongly agree. The combination of an individual's responses to these questions would produce a single score of "job satisfaction" for that respondent.

Single-item measurement is the building block of all survey research, while index construction is essential for academic survey research. Both topics will be addressed to the degree appropriate for the beginning survey researcher.

Single-Item Measurement

The first step in constructing a response scale is to decide what level of measurement is most appropriate or desirable for that variable: nominal, ordinal, interval or ratio. The level of measurement chosen will largely determine the form of the response scale.

A nominal scale is one which uses numbers simply for classification or categorization. The variable "sex" always utilizes nominal scaling: generally "1" signifies male and "2" signifies female (or vice versa). Numerals used in nominal scaling in no way indicate order or any mathematical property; they are simply categories. The categories must, however, be both exhaustive and mutually exclusive--that is, a response must fit into one and only one category.

Ordinal measurement yields more information than nominal measurement. An ordinal scale is one in which responses are ranked or ordered. Increasing numbers on the scale indicate more of the attribute being measured, although the differences between categories are not standard (equal) units. To illustrate, we might create the following response categories for the variable "socio-economic status": lower-lower (1), upper-lower (2), lower-middle (3), upper-middle (4), lower-upper (5), and upper-upper (6). The size of the numerical response designations means something--respondents who score on this scale have greater "socio-economic status" than those who score 4, and less of the attribute than those whose score is "6". Since the intervals between responses cannot be assumed equal, we cannot say that one who scores 4 has twice as much socio-economic status as one who scores 2. That degree of interpretation must be left to interval scales.

Interval scales measure in terms of standard units. Intervals measured in standard units allow for specific conclusions to be drawn about responses: since the intervals between scale values are known they can be meaningfully compared arithmetically. One example of an interval scale is the Fahrenheit temperature scale. The difference between 20 ^{o}F and 40 ^{o}F represents a known quantity that is twice the difference in 20 oF and 30 ^{o}F. However, 0 ^{o}F does not signify the absence of heat, which illustrates the limitation of interval scales: there is no absolute zero point.

The level of measurement for variables which are measured in standard units and have a true zero point is the ratio scale. For instance, the number of hours per day a parent spends with a child can be measured on a ratio scale. The differences in hours are standard units and the possible response that a parent spends 0 hours per day with the child is a meaningful datum.

Besides establishing the desired and appropriate level of measurement, several guidelines should be followed in constructing response scales. First, the number of response categories (and consequently, the scale) should not be too large. The average person can store a maximum of seven items in short-term memory at a time; therefore, seven responses are the most that can be compared simultaneously, and in general, still smaller scales (e.g., 1-5) produce more accurate data. If a much larger scale is necessary, response accuracy is greatly improved by using a visual aid (e.g. an illustrated numerical scale) or an analogy (e.g., attitudes as analogous to degrees on a thermometer).

Another rule is to always employ verbal "anchors" on a numerical scale. For example, if respondents are to rate on a 5-point scale the amount of confidence they have in the President, a written explanation for a rating of "1" might be "no confidence" and for point 5, "complete confidence."

A third consideration is whether to give respondents an odd or even number of response categories. An odd numbered scale provides for a middle, "neutral" category (e.g., "neither satisfied nor dissatisfied") while an even number forces respondents to state an opinion (slightly satisfied or slightly dissatisfied). A disadvantage of the "neutral" category is that respondents tend to use it indiscriminately. Omitting the neutral category can also be problematic however: being forced to give an opinion when one really doesn't have one can cause a negative emotional reaction in a respondent. This dilemma is best solved on an item-by-item basis. If the question addresses a topic on which everyone can be expected to have at least some opinion, an even number of responses with no "escape category" will yield more usable data.

Index Construction

Index construction utilizes multiple "single-item measurements" to measure a psychological construct, usually an attitude. This type of scaling has the advantages of measuring a broader scope of the variable in question than a single item can measure and reducing measurement error. It also has the disadvantages of increasing survey costs by increasing questionnaire length (which in turn lowers response rates) while often providing only marginal additional information. Index construction is a vital aspect of academic research as well as any survey research which has as its goal the in-depth analysis of a small number of constructs.

A basic consideration is constructing scales at this level is the manner in which responses will be combined. Three commonly used scaling techniques are Thurstone scaling, Likert scaling, and Guttman scaling.

Thurstone scales are constructed of a number of statements of varying intensity pertaining to the variable of interest. Each statement has been assigned a scale value which represents how favorable or unfavorable the statement is toward the topic of interest. The respondent is asked to indicate agreement or disagreement with each statement, and the scale scores of agreed-to statements are summed. The total represents the individual's score on the variable of interest.

Likert scales are more commonly used than Thurstone scales. Again, a set of statements of varying favorability toward the research topic are used. For each statement respondents indicate their degree of agreement/disagreement. Response categories are constructed so that more favorable responses are indicated by higher scores on the item. The sum of the respondent's scores on the items represents his or her total score on the measured variable. Whereas a high Thurstone scale score is obtained by agreement to more extreme items, a high Likert scale score represents more intense agreement to more items.

One problem with the above scaling techniques is that information on how the score was obtained is lost. Two respondents might both have scores of 20, yet have given very different responses to individual items. Guttman scaling eliminates this problem by ordering the statements according to increasing or decreasing favorability, so that a respondent who agrees with the most favorable statement should also have agreed to all other favorable statements. Likewise, one who agreed to the most unfavorable statement should have agreed to all other unfavorable statements. If the item statements are scaled correctly (increasing degrees of either favorableness or unfavorableness) identical scores for respondents should reflect identical response patterns as well as rank respondents in regard to attitudes toward the research variables.

RELIABILITY

Reliability is the extent to which a measure yields self-consistent, reproducible results. However, just as the term "scaling" is used in two senses in survey research so also can distinctions be made regarding reliability, depending on the kind of reliability estimate used. Estimates are of two types: stability measures and equivalence measures. Both point to the amount (or lack of) unsystematic variation in a particular measure when it is used a number of times; but they do so using different approaches.

Stability measures indicate reliability by comparing scores obtained by respondents at one point in time with scores obtained by them at a later time using the same instrument. For many kinds of instruments (e.g., mathematical abilities tests, I.Q. tests) stability measures are the most efficient and appropriate means of establishing reliability.

Equivalence techniques assess reliability by comparing responses obtained at the same point in time on two or more measures which elicit the same information. For example, respondents complete two separate questionnaires containing highly similar questions on the same topics. The statistical comparison of responses for the questionnaires will indicate reliability of the questionnaires. More commonly, equivalence techniques assess the reliability of a single instrument by comparing responses to various questions on the same questionnaire. This requires that several items on the questionnaire elicit the same information.

It is, of course, essential that survey questionnaires be reliable. However, the traditional methods of assessing reliability are problematic in survey research. Survey research often addresses attitudes and opinions which are susceptible to change. Stability estimates cannot differentiate unreliability of the instrument from genuine changes in attitudes over time. Furthermore, asking highly similar questions at the same point in time is both annoying to the respondent and an inefficient method of data collection, making equivalence methods a somewhat inappropriate means of reliability assessment.

Efforts in survey research are better spent in initially constructing a reliable questionnaire than in assessing its reliability after the fact. One way to guard against unreliability is to carefully word items so that they are unambiguous, straightforward, and do not elicit a biased response. Using a pretest to screen for problematic items is highly recommended. Reliability is also enhanced by careful training of interviewers. Except in the case of self-administered surveys, interviewers are part of the measuring instrument. There should be near-perfect agreement in interviewer behavior towards respondents and in scoring of respondents' answers. Reliability can be indirectly assessed through the next topic, validity; for if a measure is valid it must also be reliable.

VALIDITY

Validity refers to the extent to which an instrument measures what you intend it to measure. As with reliability, there are several approaches to or types of validity. Though some are of more use than others in survey research, each addresses validity in a unique way. The three main types of validity are construct validity, content validity and criterion-related validity.

Construct validity is the theoretical application of the term "validity." It is based on the existence of an underlying psychological or sociological variable (construct) that is hypothesized to exist (e.g., job satisfaction, socio-economic status). Construct validity answers the question: To what extent does this instrument measure the hypothesized variable of interest? Since it refers to something that only theoretically exists, construct validity cannot be assessed directly, although the presence of other types of validity support its existence. However, careful delineation of the construct (before the research project is ever undertaken) greatly enhances the construct validity.

Careful thought should be given to the meaning of the construct, its relationship to other constructs and its relationship to observable behaviors or measurable attitudes. Designing the questionnaire with these issues in mind will result in a much more construct-valid instrument.

Content validity is exclusively concerned with item and questionnaire design. The crux of content validity is whether the items on the instrument adequately address the behaviors and attitudes which can be reasonably associated with the construct of interest. It is important that the number and content of questionnaire items comprehensively cover the domain of the construct. Much of content validity is based on the professional judgments of experts. Again a thorough knowledge of the construct(s) being explored and item construction is the best validation strategy.

Criterion-related validity is indicated by the statistical relationship between an instrument and a criterion variable. Suppose we were interested in assessing the socio-economic status of children using survey research. The questionnaire might include questions on a variety of topics: number of rooms in the child's house, number of cars owned by the family, and whether one or both parents held jobs. Response scores would then be compared to criterion variables such as household income, parents' education level and classification of the neighborhood in which the child resides. Criterion-related validity does not prove the construct validity of the instrument since it only provides for comparisons of a measure of the desired construct (e.g., the questionnaire) to another indicator of the desired construct (the criterion). As previously noted, however, it does lend strong support to the notion of construct validity.

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SAMPLING

Social researchers often gather information about a small number of cases and seek to make judgments about a much larger number of cases. That is, they use sampling in their research because it is usually impossible or impractical to study all cases in the population of interest. A survey researcher who is interested in estimating the proportions of the vote that will go to the Democratic and Republican candidates will try to study a sample of individuals from the entire voting population. Imagine the financial resources, manpower, and time that it would take to poll the approximately 12.5 million adults who are potential voters! Besides time and expense considerations, it is often unnecessary to study the whole population since a carefully chosen sample can yield estimates of population values that are within acceptable limits of error. Careful sampling ensures we have drawn our cases so that our sample accurately reflects the composition of the population to which we wish to generalize.

In order to understand the logic behind sampling we must first begin by clarifying some basic terms typically employed in discussions of sampling. A population is the aggregate of all the cases that conform to some designated set of specifications. It does not necessarily mean a group of people; it can refer to some general category of things or events. A population might be the height of every adult in the United States, the number of bushels of wheat grown on any acre of land, all adult women in a university, etc. A particular subgroup within the population is referred to as a stratum (pl. strata). For instance, a given population may be subdivided into strata consisting of males under 21 years of age, females under 21 years of age, males from 21 through 59 years, and so on. Different strata within a particular population are usually formed on the basis of such characteristics as age, race, and sex. A single member of a population is referred to as a population element. For example, in a study of voting behavior, every adult who is a potential voter is an element of this population. The target population is the largest population to which we are willing to generalize the results of our research. Suppose we are doing research in reading ability among first graders. We might have as our target population all first graders in the U.S., or all six-year-old's in the world, depending on what we are studying. A sample is any group selected from a population for the purpose of a particular study. Between the target population, that is the population to which we want to generalize the results of a study, and the sample, that is the people we actually look at, there is an intermediate group called the parent population (or the accessible population). This is the actual group we select our sample from. In the case of the reading research example, we will choose people who live in our city to work with, not people scattered all over the United States. The group that we choose our sample from is the parent population.

Sampling Designs

There are many sampling methods or procedures, but these fall into two basic categories: probability sampling and nonprobability sampling. The essential characteristic of probability sampling is that for each element of the population the probability that it will be included in the sample can be specified. That is, every element of the population has a known, though not necessarily equal, chance of being selected for the sample. In nonprobability sampling, there is no way of estimating the probability that each element has of being included in the sample, and no assurance that every element has some chance of

being included. Since we do not know the chance which each element has of being selected for a particular sample, nonprobability sampling plans do not allow us to estimate how closely our sample results approximate what we would have found out had we instead considered the total population. In contrast, such estimates of population can be made with probability samples. Probability sampling is the only approach that makes possible representative sampling plans. Major forms of nonprobability samples are accidental samples, quota samples, and purposive samples. Major forms of probability samples are simple random sampling, systematic sampling, stratified sampling, and cluster sampling.

Nonprobability Sampling

In accidental sampling, one simply reaches out and takes the cases that are at hand, continuing the process until the sample reaches a designated size. For example, reporters who stand on busy street corners and interview people as they pass by carry out this sort of sampling.

A quota sample is one in which interviewers are told to screen potential respondents in terms of desired characteristics. For a survey on attitudes toward affirmative action, the quota sampling plan might call for 50 percent of the interviews with blacks and 50 percent with whites.

Purposive sampling refers to a judgmental form of sampling in which the researcher purposely selects certain groups or individuals for their relevance to the issue being studied. The basic assumption behind purposive sampling is that with good judgment and an appropriate strategy one can hand pick the cases to be included in the sample and thus develop samples that are satisfactory in relation to one's needs.

While nonprobability sampling in general cannot adequately deal with the question of representativeness, its major advantages are convenience and economy. In general, nonprobability sampling is better suited for exploratory research ideas. A major drawback with such samples is that there is little or no control over who is selected, and thus there is no assurance that those selected are in any way representative of some clearly specified population of more general interest.

Probability Sample

Simple random sampling is the most frequently used and the most basic probability sampling method. The basic characteristics of simple random sampling is that all the members of the population have an equal chance of being included in the sample. Thus, if we list all members of a defined population and select a sample by employing a procedure where sheer chance determines which members on the list are drawn for the sample, we have selected a simple random sample. The most systematic procedure for drawing a simple random sample is to refer to a table of random numbers, which is a table containing columns of digits that have been mechanically generated, usually by a computer, to assure a random order. The first step in drawing a random sample from a population is to assign each member of the population a distinct identification number. Then the table of random numbers is used to select the identification numbers of the subjects to be included in the sample. Even random selection, especially with small samples, does not absolutely guarantee a sample that will represent the population well. Random selection, however, does guarantee that any differences between the sample and the parent

population are only a function of chance and not a result of the researcher's bias. That is, the differences between random samples and their parent information are not systematic. A major drawback with simple random sampling is that it requires an enumeration of all the members in a population before the sample can be drawn. This requirement often presents an obstacle to the use of this method in practice.

A systematic sample is very similar to a simple random sample. According to the systematic sampling procedure, a sample is selected by taking every tenth unit of the population once the sampling units are numbered or arranged in some fashion. The letter n is the sampling ratio, that is, the ratio of the population size to the size of the sample. Thus, if a sample of 40 units is selected from a population of 1,000 units, then n = 1000/40, or 25, and the sample is obtained by taking ever 25th of the population. The principal advantage of systematic sampling over simple random sampling is the relative ease in executing the selection process.

Stratified sample is another frequently used probability sampling design. This procedure involves dividing the population into classes, or groups, called strata. Units included in each stratum are supposed to be relatively homogeneous with respect to the characteristics to be studied. A subsample is taken from each stratum using simple random procedures. The subsamples for all the strata are then combined to obtain the overall sample. Stratified sampling is most frequently used in handling heterogeneous populations such as data on family income in a single metropolitan area. By stratification, strata are set up such that the units within each stratum are more homogeneous and the strata are different from one another. The sampling ratio may be made the same for all strata; thus the proportion of the overall sample from each stratum is not left to chance, and the representativeness of the overall sample can be assured.

Cluster sampling can sometimes be used in situations where it would be difficult or impossible to obtain a complete list of all the elements in the population. This procedure involves, first of all, the selection at random of groups, or clusters, from the population. The overall sample is made up of all, or a subsample of, the units in each cluster. Cluster sampling is different from stratified sampling in that differences between clusters are usually small, and the units within each cluster are generally more heterogeneous. Once a sample of clusters has been selected, a simple, systematic, or stratified random sample of individual elements is selected from the chosen clusters. For example, in a survey of all students who are currently enrolled in all of the colleges and universities throughout the United States, one might first sample from a list of colleges (cluster of students) in the United States. A stratified sample by size of institution might be appropriate. The final stage of sampling would entail the selection of a simple, systematic, or stratified random sample of individual students from the chosen colleges. The advantage of cluster sampling is that a complete listing of all the elements in the population is not necessary. Only a listing of the relevant clusters is required. The disadvantage of cluster sampling is that the sampling error in a cluster sample is greater than other probability samples of the same size. One way to deal with this problem is to select a larger sample size.

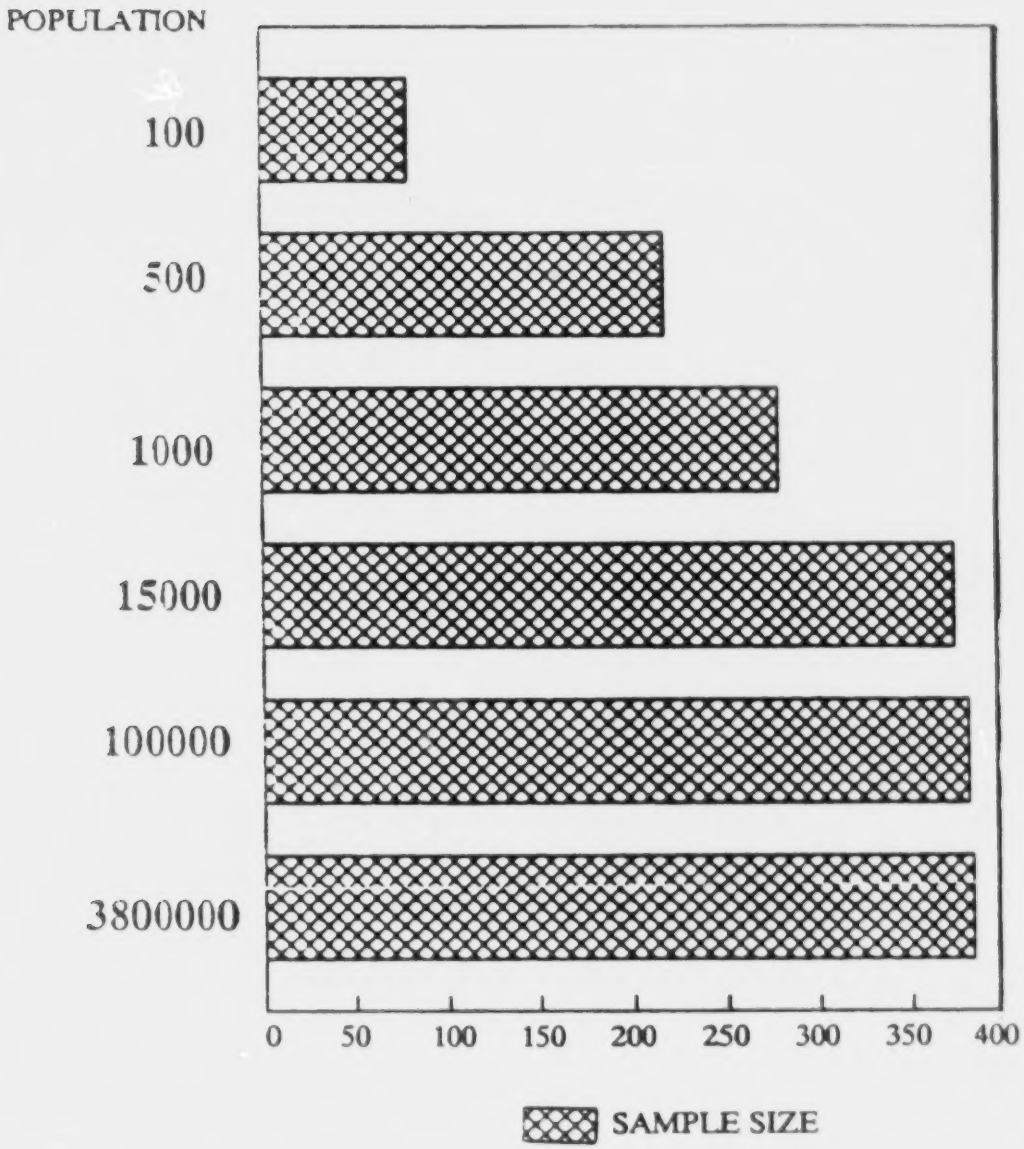
Sample Size

Perhaps one of the most frequent and obvious sampling errors is that of basing far-reaching conclusions on samples which are too small. How large a sample must be is of crucial importance because it has a major impact on the amount of time and money that must go into the data collection phase of the research.

Sample size is determined in part by population size, however, once the population is more than 1,000, the size of the population has little additional influence on sample size. This is illustrated graphically on the next page.

Technically, the size of the sample depends upon the precision the researcher desires in estimating the population parameters at a particular confidence level. There is no single rule that can be used to determine sample size, but two factors one must consider are the amount of variation we expect in the characteristic we are measuring and the frequency of its occurrence in the population. The amount of variation is important because the larger the sample, the more sensitive it is to variation. For example, suppose we were trying to establish the normal body temperature of a human being. There is very little difference from one person to another, so a quite small sample would be likely to give us a mean in the neighborhood of 98.6 degrees. On the other hand, if we were trying to establish the average reading speed of an adult population, we would need a very large sample since reading speed may vary from a hundred to several thousand words per minute. Frequency of occurrence is another important consideration. Suppose one is doing cancer research. If the particular cancer in question is looking for occurs at the rate of only two per thousand, then obviously a very large sample is needed to detect it. In general however, the larger the sample, the less the sampling error, and the more precise will be estimates based on the sample.

POPULATION SIZE: SAMPLE SIZE*



*Sampling error & confidence levels are consistent

QUESTIONNAIRE MODIFICATION

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QUESTIONNAIRE MODIFICATION

The Project PANAMS staff has designed the Special Education Personnel Needs Assessment Management System with your needs in mind. We are aware that most states will want to perform analyses by unique demographic criteria, and that some of the wording on the questionnaire will need to be revised to conform to either regulation or common terminologies prevalent in your state.

This section provides explanations and instructions for modifying the SpecEd needs assessment materials to meet your state's unique needs.

Using the Demographic Code Feature

Most states find that data analysis according to specific demographic criteria is an important source of information on how geographic, economic, and environmental factors influence the needs of teachers. To facilitate analysis by demographic criteria and to assist you in tracking rates of return from specific respondent groups, SpecEd has been programmed to accept two six-character demographic codes as part of each data record.

NOTE: SpecEd also allows you to choose analysis criteria from the first five questions on the questionnaire, so any information available from these questions need not be repeated in demographic codes.

During the data entry process, the demographic codes which have been written on an individual survey questionnaire are entered along with question response data from the same questionnaire, and stored in an individual data record. When you are ready to analyze data, you may specify any single code character or combination of code characters as part of your analysis criteria. Data from all questionnaires which have been tagged with the selected codes will be included in the analysis.

Basic Rules for Assigning Codes:

1. Each code field holds six single-character codes. The code characters **a**, **2**, and ***** are acceptable single-character codes.

   Multi-character codes may not be used (i.e., the characters abc23* would be read as six separate codes, a, b, c, 2, 3, and *, filling one code field. SpecEd cannot interpret ab, c2, and 3* as three multi-character codes filling one code field.)

2. Acceptable code characters are:
   Alphabetic characters: **a-z**
   Numeric characters: **0-9**
   Special characters: **!, @, #, $, %, ^, &, *, (,), +**
   Total number of single-character codes available: **47**

   NOTE: (SpecEd does not distinguish between upper and lower case characters, **A** and **a** mean the same thing.)

3. Since a complex demographic data analysis plan may include more than 47 individual demographic items to be used as analysis criteria, SpecEd has been programmed to view **Code Field #1** and **Code Field #2** as separate, unique data items. Therefore, you may use a particular character to represent a certain demographic item in code field #1, then use the same character to represent a second demographic item in code field #2. You may not use the same code character to represent different demographic items in the same code field. See "Devising a Coding Plan" for examples which further clarify this point.

4. SpecEd does not require that you use all six available spaces in a code field, or that you use either code field at all. If you do not need to use either or both code fields, the prompts provided on the data entry and data analysis screens may be skipped by pressing the return key.

   If you wish for either or both code fields to hold fewer than six character codes, enter the appropriate characters, leaving the remaining available spaces blank. Do not use the character zero (0) to fill unused spaces in a code field. SpecEd will interpret the zero as a meaningful character code representing a specific analysis criterion.

   For example, all of the following code fields are acceptable: abcdef, bdf, a#fbc, b, defac

5. Individual code characters may be arranged in any order within a code field. Your instructions at analysis time, in effect, tell SpecEd to locate all data records which contain a certain code character in a particular code field, for example the letter b in code field #1. SpecEd will scan all six characters of code field #1. If the letter b is found anywhere in the field, the data record will be tagged for analysis. Of the sample code fields shown in #4, the first four would be tagged for analysis since each contains the letter b somewhere in the field.

   NOTE: No record containing the letter b in code field #2 will be tagged because this example does not instruct SpecEd to search code field #2 for that character.

6. Code questionnaires carefully. When both code fields are used, it is good practice to show both fields on each questionnaire even if only one field applies to a particular respondent. Data entry personnel will be entering demographic codes directly from survey questionnaires and must be able to tell if a given set of characters should be entered in code field #1 or code field #2.

   An easy way to define code fields is to use a dash (-) to separate code field #1 from code field #2 on the survey questionnaire.

Examples:	abc-cde	= abc in code field #1 cde in code field #2
	abc-	= abc in code field #1 code field #2 blank
	-cde	= code field #1 blank cde in code field #2

Devising a Coding Plan for use with SpecEd Software:

Most demographic coding systems already being used by state departments of education can be used with the SpecEd data analysis system, with only minor modification, such as replacing multi-character codes with a one-character equivalent.

The following steps in devising a demographic coding plan can also be followed to ensure that your state's established coding plan, and SpecEd's demographic coding system will interact properly.

1. Make a list of the broad demographic categories you wish to use for analysis.

   Example: **1. Community Size**
   2. School Level

   NOTE: SpecEd will accommodate six broad categories in code field #1, and six in code field #2. If you have more than 12 categories on you list, check to see if two can be combined into an even broader category.

2. For each broad category make a list of the subcategories you wish to use for analysis.

   Example:

Community Size	**School Level**
1. Metro areas	**1. Elementary grades**
2. Rural areas	**2. Middle school grades**
	3. Secondary grades

   Remember that you have 47 code characters available for use in code field #1, and that each of these characters may be repeated in code field #2, so with careful planning your demographic analysis may include up to 94 individual analysis criterion (subcategories).

3. Determine and assign appropriate single-character codes for each sub-category, or individual analysis criterion, on your list.

   Example:

Community Size	**School Level**
m - metro	**e - elementary**
r - rural	**m - middle school**
	s - secondary

4. With the individual codes you have assigned in mind, determine which six broad categories will be represented in code field #1, and which in code field #2.

   In our example, the letter **m** is an appropriate and meaningful for two analysis criteria, metro area schools and middle school grades, but we cannot use the same code to represent different analysis criteria in the same code field. This conflict can be rectified in one of two ways.

A. Assign the broad category **Community Size** to **code field #1**, and the broad category **School Level** to **code field #2**. The letter **m** can then be used to represent the metro analysis criterion in code field #1 and the middle school analysis criterion in code field #2.

B. If the logic of your analysis plan dictates that both community size and school level be shown in the same code field, you will need to change one of the codes (perhaps changing the **m** for middle grades to **i** for intermediate grades or **j** for junior high grades).

5. The appropriate demographic analysis codes for a particular respondent may be:

A. Determined from teacher lists available to state department personnel, then written on questionnaires before distribution. This method facilitates accurate tracking of rates of return from particular respondent groups.

B. Determined from supplemental information requested from the respondent. In this case codes will be written on individual questionnaires after they have been returned. If using this method, keep in mind that all respondents may not provide all of the information requested. Be sure to assign a character code to indicate "information not available" for each major category to be analyzed. Special characters such as #, &, or % are ideal for this.

Example:	Community Size (#1)	School Level (#2)
	m - metro	**e - elementary**
	r - rural	**m - middle school**
	# - info not avail	**s - secondary**
		& - info not avail

Modifying the Survey Questionnaire

The SpecEd Survey Questionnaire, and Analysis Software operate as a team to collect and analyze needs assessment data. In order for this team effort to be successful, that is for the SpecEd software to process raw data accurately and efficiently, the physical formats of the original questionnaire and your modified questionnaire must be consistent.

The SpecEd software operates on a mathematic, not language, basis so accuracy of results is not dependent on exact wording of any question. You may change the wording of response options for any or all 12 questions. In fact, a special program which allows you to change those screen prompts and printout labels that reflect possible responses to questions has been provided for your convenience. (See page 80.)

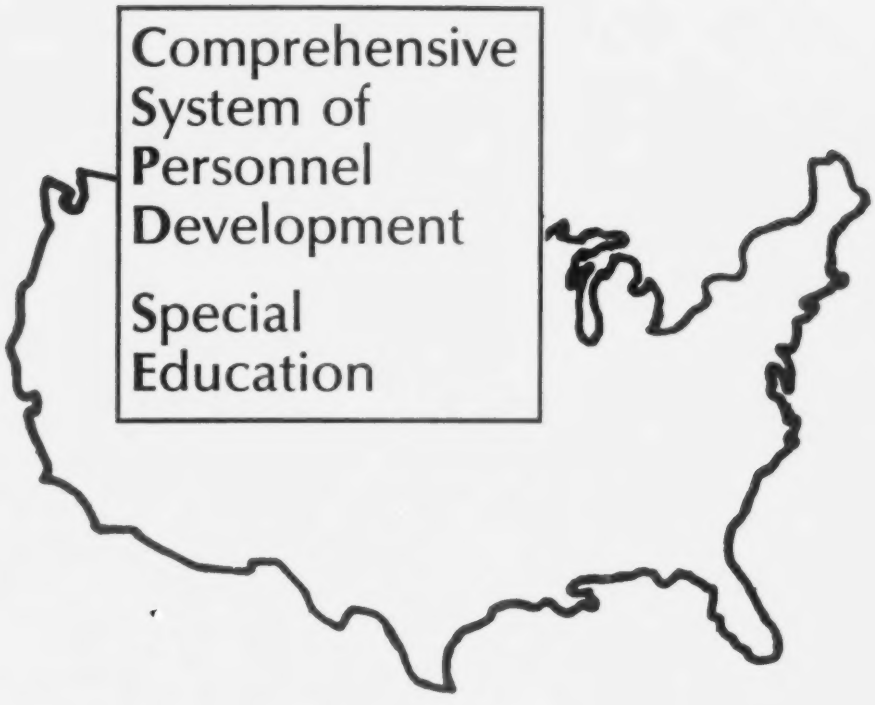
The preprogrammed procedures which enable SpecEd to automatically build and process your database, however, are based upon a question format/question position correlation. Therefore, the physical format of the original questionnaire must be retained with limited adjustments. Basic rules of thumb are:

1. You may not rearrange the positions of questions on the questionnaire unless such rearrangements conform to rules 2 and 3. For example, you may not switch the positions of Questions 1 and 4 because SpecEd is preprogrammed to accept only eight possible responses for the first question on the questionnaire. Question 4 allows 15 possible responses. So if Question 4 were moved to the first position on the questionnaire, SpecEd would accept the numbers 1-8, but would reject response options 9-15 as out-of-range errors.

2. You may not increase the number of options available for selection, or the number of selections the respondent is allowed to make for any question. For example, Question 1 allows the respondent to select one of eight options. SpecEd can accept only one data entry item for this question, and that entry must be within the range of 1-8.

3. You may reduce either or both the number of options available for selection and the number of selections the respondent is allowed to make for any question. For example, Question 5 allows the respondent to select up to three from a list of 11 options. This question format may be adjusted to allow the respondent to make one or two selections from 11 or fewer options. If the format is adjusted to allow only one or two selections, the **Enter/ Edit Data** screen will still display three prompts for Question 5 (5.1:, 5.2:, and 5.3:). Just press the **Enter** key to skip over each extra prompt.

4. Question 6 is a special case. The subject area headings shown on the original SpecEd Survey Questionnaire are provided as artificial subdivisions to improve readability for respondents. SpecEd, in reality, analyzes each of the 53 subquestions individually, not in relation to other questions in the same subject grouping. Therefore, you may change both the number and locations of artificial subdivisions as well as the number of questions which are grouped under a certain heading. The maximum number of subquestions, however, must remain 53.



USING THE COMPUTER'S SOFTWARE

INTRODUCTION TO SPECED SOFTWARE

Shirley Crowley and John Phillips

PANAMS' SpecEd Data Analysis Software is an easy-to-learn data entry and storage system which complements PANAMS' Special Education Personnel Data Collection Instrument. When you start the SpecEd program, the **Main Menu** will automatically appear on your screen. To operate SpecEd, choose one of the six options shown. Then complete the task using the option screen which appears.

MAIN MENU

1. Enter/Edit Data
2. Analyze/Print Selected Data from the Data File
3. Export Data to Another Software Package
4. Copy/Delete the Entire Data File
5. Modify Screen Prompts and Printout Wording

1. **Enter/Edit Data**

   Choose this option to enter new data from questionnaires or to edit data which has already been entered. The **Enter/Edit Data** screen displays each of the 73 data items (from a single questionnaire) as you enter them. Entries remain on the screen, so that you can proof and/or edit, until you authorize storage in the data base file. Even after data has been stored, individual questionnaire entries can be retrieved for editing.

   In addition, the data entry function contains response-validation features to help you catch typographical errors and unacceptable responses as they occur.

2. **Analyze/Print Selected Data from the Data File**

   Choose this option to generate a printed report of all, or selected groupings of, data contained in the data file. The **Analyze/Print Selected Data** screen provides a selection of analysis criteria options. You choose the combination that fits your current need, and SpecEd will automatically perform the analysis according to your selections.

3. **Export Data to another Software Package**

   Choose this option if you wish to run additional statistical analyses with software programs such as SAS and SPSS. SpecEd's data file has been designed to facilitate exportation of data for use with these software packages.

4. **Copy/Delete the Entire Data File**

   Choose this option to erase the SpecEd data file, or to copy the data file onto a floppy disk, thereby releasing disk storage space after all analysis of the data has been completed.

5. **Modify Screen Prompts and Printout Wording**

   Choose this option to change the wording of screen prompts and printout reports to reflect wording changes which have been made on the survey questionnaire.

READ THIS FIRST

If you are installing SpecEd on a computer which has one hard disk drive and one floppy disk drive, follow the instructions given under **Hard Disk Installation**. If you are installing SpecEd on a computer which has two floppy disk drives, follow the instructions under **Dual Floppy Drive Installation**.

HARD DISK INSTALLATION

Most computers equipped with hard, or internal, disks have two drives: an external floppy drive called drive A, and an internal hard disk called drive C. To install the SpecEd software, you will copy the SpecEd program files from the floppy disk provided with this manual onto your computer's internal hard disk drive. SpecEd will then be operated from your computer's hard (or C) drive.

NOTE: While the general procedures for creating subdirectories and installing software packages follow a standard outline, the exact format of the screen prompts which indicate the disk drive and/or subdirectory your computer is using may differ according to the preferences of the computer manufacturer or of the individual who originally installed the equipment. If you have never installed a software package or if you are not familiar with the computer you are using, it will be helpful to have your computer's DOS manual available for reference. **Your hard disk should already be formatted. Do not, under any circumstances, format your hard disk while installing new software.**

You will need: The original SpecEd software diskette

1. Boot your computer.

   If your computer is turned off, turn it on, then type the date and time as these prompts are displayed. When you see the root directory DOS prompt (C>) go to #2.

   If your computer is already in use and the DOS prompt is not displayed, exit the software you have been using. If the root directory DOS prompt is still not displayed, enter the "change directory" command **cd** and press the enter key. This should return you to the root directory.

2. Create a PANAMS subdirectory to hold all SpecEd programs and data files.

   Enter **md\pa**

   NOTE: Be sure to use the backslash \ (located beneath the letter z on a standard keyboard or beneath the backspace key on an enhanced keyboard), not the forward slash / (located on the same key as the question mark).

3. Make your new PANAMS directory the active directory.

   Enter **cd\pa**

   Your computer is now operating within your new, but empty, PANAMS subdirectory.

4. Copy SpecEd's program files from the original SpecEd software diskette to your new PANAMS subdirectory.

   Insert the original SpecEd software diskette in your computer's floppy disk (A) drive.

   Enter **copy a:*.***

   This will copy all the files from the original SpecEd software diskette to the PANAMS subdirectory on your hard disk drive. Remove the original SpecEd diskette from the floppy drive and store it in a safe place. You will not need it for daily operations.

5. The last step in preparing SpecEd for daily operation is creating your data file. The files you copied into your PANAMS subdirectory are collectively called SpecEd, and the software system is activated when you tell your computer to run SpecEd by typing the word **speced** to the right of the drive or subdirectory prompt. (The prompt appearing on your screen may differ from the one displayed here.)

   C\PA>**speced**

   SpecEd's **Main Menu** will be displayed with the prompt **Which Disk Drive for the Data Files? : A, B, or C?** at the bottom of the screen. Enter the letter of the drive that you want SpecEd to use for data storage.

   SpecEd will check to see if the SpecEd data base files exist at the disk drive location you specified. At this point, your data base has not yet been created and SpecEd will ask

   Create new data files? (Y/N)

   answer **Y** (You do not need to press **Enter**.)

   SpecEd will create your data base files and display the **Main Menu**.

6. Exit SpecEd by pressing the **Esc** key. This will close all of the data base files and end the program. <u>Always end the program before turning off the power. Failure to end the program before turning off the power could result in damage to your data file</u>.

DUAL FLOPPY DRIVE INSTALLATION

You will need: **The IBM DOS or MS DOS diskette which came with your computer**
The original SpecEd software diskette
Two new floppy diskettes

The following procedures will combine DOS operating programs and SpecEd operating programs on a single **SpecEd working copy** diskette. After your working copy diskette has been prepared, store the original SpecEd diskette in a safe place and use your working copy for daily operation.

Transfer DOS command programs to the working copy diskette:

1. Insert your DOS diskette in Drive A and close the disk drive door.
2. Turn on your system. Enter the current date and time at the prompts displayed on the screen.
3. The DOS logo and DOS prompt (A>) will be displayed.
4. At the DOS prompt type the command **format b:/s**.

   A> **format b:/s**

5. Follow the directions which appear on the screen. Be sure to insert a new unformatted disk in drive B, **not your SpecEd program disk.**

   Insert new diskette for drive B:
   and strike any key when ready

6. Disk drive activity will occur while the new diskette is being prepared. After formatting is complete a message similar to the one shown below will be displayed.

   Formatting. . .Format complete
   System transferred

   362496 bytes total disk space
   40960 bytes used by system
   321536 bytes available on disk

   Format another (Y/N)?

   Respond N.

7. All necessary DOS operating programs have now been installed on your working copy diskette.

Transfer the SpecEd operating programs to your working diskette:

8. Remove the DOS diskette from drive A and replace it with the original SpecEd software diskette.

9. At the DOS prompt, type the command **copy a:*.* b:**

   A> **copy a:*.* b:**

10. SpecEd's main operating program, **speced.exe**, will be copied onto to your working diskette. After the copying process is complete a message similar to the one shown below will be displayed.

    Speced.exe
    1 File(s) copied

11. All operating files needed for proper functioning of SpecEd have now been copied onto your working diskette.

Prepare the data file diskette:

1. Insert your DOS diskette in Drive A and close the disk drive door.

2. If the DOS prompt (A>) is displayed on your screen go to step 3. If the DOS prompt is not displayed, boot the DOS disk by pressing the **Ctrl-Alt-Del** key combination.

3. At the DOS prompt type the command **format b:**.

   A> **format b:**

4. Follow the directions which appear on the screen. Be sure to insert a new unformatted disk in drive B, **not your original SpecEd program disk or your SpecEd working copy disk.**

   Insert new diskette for drive B:
   and strike any key when ready

5. Disk drive activity will occur while the new diskette is being prepared. After formatting is complete a message similar to the one shown below will be displayed.

   Formatting. . .Format complete
   System transferred

   362496 bytes total disk space
   40960 bytes used by system
   321536 bytes available on disk

   Format another (Y/N)?

   Respond N.

6. Your data file storage disk is now formatted and ready to store data. Label this disk and use it.

KEY WORDS

Cursor Movement Keys - The arrow keys located below the numbers 2, 4, 6, and 8 on the numeric keypad control the direction of cursor movement on the display screen when the **Num Lock** key is set for cursor movement mode.

Data Record - All data from a single survey questionnaire, including the survey number and code field characters, is stored in the data base file as one data record. Each data record is identified by its survey number and may be retrieved for editing or review by typing the survey number at the **Survey Number** prompt on the **Enter/Edit Data** screen.

Drive Prompt - The prompts A>, B>, or C> which appear on the left side of your display screen indicate which disk drive DOS is currently using. If you are using a hard disk computer system, SpecEd will operate most conveniently from your hard disk (Drive C). If you are using a computer system with two floppy disk drives, it will be most convenient to operate SpecEd from Drive A.

The exact format of drive prompts may differ according to the preferences of the equipment manufacturer, or those of the individual who originally installed the equipment. For example, the prompts C>, C:>, and C:\> mean the same thing. To become familiar with the prompt format on an unfamiliar computer, start the computer and note the format of the first drive prompt displayed. If possible, enter the name of a subdirectory, and at the next prompt, enter the **dir** command. A sample of the prompt style used within subdirectories will be shown above the program or document list.

Enter - In this manual the term enter means to type information then press either the **Enter** or **Return** key on your keyboard. In the manual the word enter (regular type) refers to entering data.

Enter Key - Depending on the style of keyboard you are using, this key may be labeled **Enter** or **Return**. Some keyboards have two **Enter** keys, one to the right of the typing keyboard (which is often labeled **Return**) and one to the right of the numeric keypad (which is almost always labeled **Enter**). Both keys perform the same function and are always active, so you may use the one which is most convenient at the moment. In the manual the word **Enter** (bold type) refers to the **Enter** key.

Num Lock Key - This key controls the operating mode of your keyboard's numeric keypad. The **Num Lock** key operates like a toggle switch. If pressing one of the keypad's arrow keys moves the cursor, the keypad is in cursor movement mode. If pressing one of the arrow keys causes a number to appear on your screen, the keypad is in numeric mode. Press the **Num Lock** key to change modes. Many newer keyboards have a **Num Lock** light which, when lit, indicates numeric mode.

NOTE: Be careful to check the status of the **Num Lock** key before using the cursor movement keys to move around SpecEd's screens. Since most of the data displayed on the screen consists of one-digit numbers, accidental entry changes caused by trying to move the cursor while the keypad is in numeric mode may not be obvious.

DAILY START-UP/OPERATING PROCEDURE

Hard Disk Drive Systems:

1. Boot your computer.

   If your computer is turned off, turn it on. Type the date and time as these prompts are displayed. When you see the root directory DOS prompt (C>) go to #2.

   If your computer is already in use and the DOS prompt is not displayed, exit the software you have been using. If the root directory DOS prompt is still not displayed, enter the "change directory" command **cd** and press the **Enter** key. This should return you to the root directory.

2. Call up the PANAMS subdirectory by entering the "change directory" command **cd\pa** to the right of the DOS prompt. (The exact format of the prompt on your screen may differ from the samples shown in these instructions.)

   C>**cd\pa**

3. Call up the SpecEd operating programs by typing **speced** to the right of the next prompt displayed on your screen.

   C\PA>**speced**

4. SpecEd's **Main Menu** will be displayed with the prompt **Which Disk Drive for the Data Files? : A, B, or C?** at the bottom of the screen. Enter the letter of the drive that you want SpecEd to use for data storage.

5. Select the Menu Option you wish to use by typing the number of the option. (You do not need to press **Enter**.)

6. A screen corresponding to the option you have chosen will be displayed.

Floppy Disk Drive Systems:

1. Boot your computer. Your SpecEd working copy diskette contains the DOS programs required for booting, be sure that your working copy diskette, not the original SpecEd diskette, is in Drive A.

   If your computer is turned off, insert your SpecEd working diskette in Drive A and turn the computer on. Type the date and time as these prompts are displayed. When you see the root directory DOS prompt (A>) go to #2.

   If your computer is already in use and the DOS prompt is not displayed, exit the software you have been using. If the root directory DOS prompt is still not displayed, enter the command **system** and press the **Enter** key. This should return you to the root directory. Insert your SpecEd working diskette in Drive A and press the **Alt-Ctrl-Del** key combination. (Press and hold all three keys, then release all keys at once.)

2. Call up the SpecEd operating programs by typing **speced** to the right of the prompt displayed on your screen.

   A>**speced**

3. SpecEd's **Main Menu** will be displayed with the prompt **Which Disk Drive for the Data Files? : A, B, or C?** at the bottom of the screen. Enter the letter of the drive that you want SpecEd to use for data storage.

4. Select the Menu Option you wish to use by typing the number of the option. (You do not need to press **Enter**.)

5. A screen corresponding to the option you have chosen will be displayed.

ENTERING AND/OR EDITING DATA FROM QUESTIONNAIRES

Main Menu Option #: **1. Enter/Edit Data**

To choose Option 1., **Enter/Edit Data**, type the number 1. Do not press the Enter key. The **Enter/Edit Data** screen, shown on the next page, will be displayed.

General Data Entry Procedures

1. You may use either the typing keyboard (with number keys on the top row of typing keys) or the numeric keypad (on the right side of the keyboard) to enter data. When using the numeric keypad, remember to engage the **Num Lock** key (**Num Lock** light on) to type numbers, and disengage the **Num Lock** key (**Num Lock** light off) to use the cursor movement keys. (If your keyboard does not have a **Num Lock** light, pressing one of the keypad arrow keys will indicate the current mode. Backspace the cursor to it's original position before pressing the **Num Lock** key to change mode.)

2. After typing an individual data entry, press **Enter**. The cursor will automatically move to the next data entry space.

3. When editing or correcting a previous entry, use the cursor movement (up, down, right, left arrow) keys to move around the **Enter/Edit Data** screen.

4. After a data record (all data entries from one survey questionnaire) has been entered, the message **Is this survey correct? Y/N** will appear at the bottom of the screen.

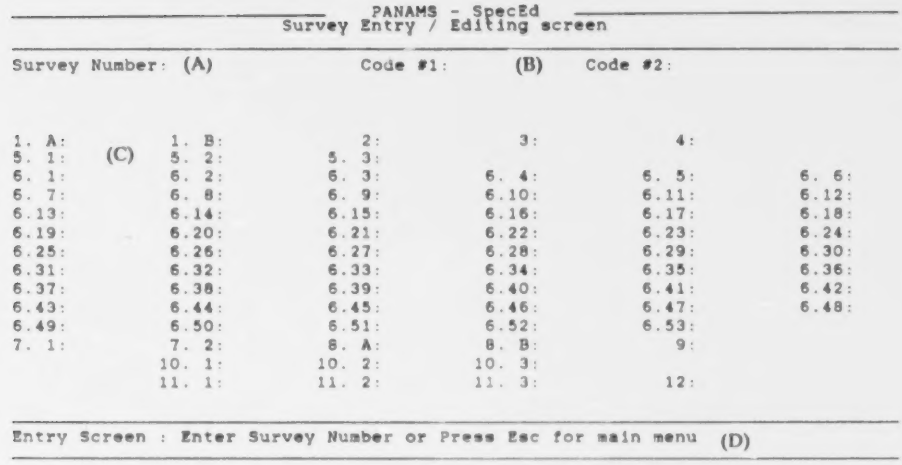
   If all of the data is correct and you are ready to store the data record in the permanent data base, respond Y. The data record will automatically be written to the data file and SpecEd will display a blank data entry screen, ready to receive data from the next questionnaire.

   If you respond N, SpecEd will automatically return the cursor to the **Code #1:** prompt at the top of the screen. If no corrections to the code fields are necessary, use the right arrow key to move to the end of the line then press **Enter**. When the cursor reaches the Question 1 prompt you may use the cursor movement keys to scroll through the data entries and correct any errors. If all corrections have been made and your cursor is still in the middle of the screen, you may use the optional **Ctrl-Enter** key combination to store the data record. (Press and hold the **Ctrl** key, then the **Enter** key. Release both keys at the same time.)

   Be sure to store every data record. Until a data record is stored in the permanent data file, it exists only in the computer's memory. If the computer is turned off, or power is interrupted, it will be lost. Once a data record has been stored in the permanent data file, it can be retrieved at any future time, even after power has been turned off, then back on.

5. Use the **Esc** key to abort (erase) a data record before it is stored in the permanent data file. When you press the **Esc** key, SpecEd will ignore any data currently shown on the screen and return to the **Main Menu**.

Parts of the Data Entry Screen



(A) Survey Number

SpecEd will automatically assign a survey number to each data record as it is entered (all data from a single survey questionnaire is one data record). SpecEd also keeps count of how many data records have been entered. This tracking device allows you to retrieve individual data records for review or editing at a later time. SpecEd's automatic numbering begins with the number 000001 and continues in numerical order, so a large group of questionnaires may be prenumbered by hand then entered in sequence. SpecEd also remembers the record count from day-to-day. So, if you enter 29 questionnaires on Monday, SpecEd will assign the number 30 to the first questionnaire entered on Tuesday.

Entering New Data from questionnaires. The cursor will automatically stop at the **Survey Number** prompt. Press the **Enter** key and SpecEd will assign the next available number for you. Write this number on the paper survey questionnaire for future reference.

Editing a data record. The cursor will stop at the **Survey Number** prompt. Type the number of the data record you want to review or edit, then press the **Enter** key. SpecEd will retrieve the data record and display it on the screen. Use the cursor movement keys to move around the screen. Correct errors by typing over the incorrect entry, then use the **Ctrl-Enter** key combination to save the edited data record.

While the cursor is located on the top line of the **Enter/Edit Data** screen (**Survey Number, Code Field #1, Code Field #2** prompts) you may use the up or down arrow key to scroll through previous or succeeding data records. After the cursor has moved below this line, the up and down arrow keys will move the cursor around the screen but will not scroll to a different data record. You must either **Esc** or save the edited record with the **Ctrl-Enter** key combination then call up a new data record before the scrolling capability can be used again.

(B) Code Prompts

After the survey number has been assigned and displayed, the cursor will automatically move to the **Code** prompts. Many states precode questionnaires to allow for analysis by demographic criteria, or to trace rates of return from specific groups. SpecEd provides two demographic code fields in each data record. Each code field will accept up to 6 characters.

If your questionnaires have been precoded, enter the codes here and press **Enter**. If you questionnaires have not been precoded, skip this section by pressing **Enter**.

(C) Response Prompts

This is the section where responses to individual questions are entered. For each question response prompt, a **question content cue** will be displayed.

When you enter the question response section, the cursor will stop to the right of the Question 1 prompt (1: ___). To enter data, type the number which the respondent has circled on the questionnaire, and press **Enter**. The cursor will then move to the right of the Question 2 prompt (2: ___).

SpecEd catches certain data entry errors for you:

Out-of-range error. SpecEd has been programmed to recognize the acceptable range of responses for each question, and to tell you if you make a typographical error which is outside that range. For example, SpecEd knows that Question 1 offers 8 response options, the numbers 1, 2, 3, 4, 5, 6, 7, or 8. If you accidentally type any number larger than 8, SpecEd will detect an out-of-range error. Your computer will make a beeping sound and display an error message along with the acceptable range of responses for that question. Type the correct response, press **Enter** and proceed.

Duplicate entry error. Survey questions 5, 10, and 11 instruct the respondent to select more than one response from the options offered. SpecEd recognizes that each response number should be different and will tell you if you accidentally enter the same response number twice. For example, question 5 asks the respondent to select three of 11 possible options, and SpecEd provides three data entry prompts (5.1:, 5.2:, and 5.3:) to accept those responses. Suppose the respondent selects options 1, 2, and 3, but you accidentally type 5.1: 1, 5.2: 2, 5.3: 1. SpecEd will catch the duplicate entry, and signal you by making your computer beep, then displaying an error message. Correct the 5.3: entry and proceed.

NOTE: When an out-of-range or duplicate entry error occurs, SpecEd freezes the cursor until the error has been corrected. That is, you must correct the error before proceeding to the next question. If the respondent has answered the question in such a way that you cannot immediately determine the correct response entry, you may need to enter a No response or Invalid response code (see below) in order to proceed. Be sure to make a note of the questionnaire and question numbers so that the data record can be retrieved and edited later.

Special situations/Other codes you will use:

No Response Code - 0 (zero) or E (press Enter key):

It is not unusual for a respondent to neglect to answer one or more questions. When this occurs, indicate that the question was left blank either by entering the **No Response** code **0** at the appropriate question prompt(s) or by pressing the Enter key to skip over the prompt. SpecEd will interpret a blank space as a zero.

For multiple response questions. If the question has been left completely blank, either enter a **0** at each response prompt (i.e. 5.1: **0**, 5.2: **0**, 5.3: **0**) or leave all response prompts blank. If the question has been partially, but not completely answered, either enter a **0** to represent unselected option(s) (i.e. 5.1: **1**, 5.2: **6**, 5.3: **0**) or leave the unused response prompt blank.

Invalid Response Code - * (asterisk) or . (period or decimal):

It is important to know the percentage of invalid responses encountered in a survey sample. A high percentage of invalid responses to a particular question may reveal information about the question itself, the people surveyed, or both. So establish guidelines for classifying a response as invalid and follow them carefully.

Invalid responses most often occur when the respondent fails to follow instructions, thereby providing data which is not really comparable with the rest of the data pool. The following are examples of common invalid response patterns which you may encounter.

1. When the respondent circles more response options than the instructions specify. Usually, there is no way to determine which options the respondent would have chosen if they had followed directions, and SpecEd will accept only the number of response entries called for by the question. The only way to use such a response is for someone to second-guess the respondent by choosing which responses to enter and which to leave out. Occasionally, when two questions are closely related, the survey administrator can make a judgment call as to which response is the appropriate one, and the question can be used. Most of the time, however, this is not possible and the entire question must be counted as invalid.

2. When the respondent circles a response number, but marks out the printed response message and writes in his or her own. This respondent's choice of a given option is not the same as everyone else's because they have changed the meaning to suit their own purposes. Sometimes, such responses can be reclassified as **Other** and the response number corresponding to the **Other** option for that question entered. In other cases, the respondent may be uncertain as to which printed response most closely fits their situation, and the survey administrator can make the judgment. (For example, an adapted physical education teacher may not be sure whether the surveyor wants him or her classified as a Special Education Teacher or Other.) But most often, response options which have been revised by respondents are not usable.

3. When the respondent rewrites the question and/or directions for responding. (Yes, this really happens.) Obviously, this respondent is not answering the same question as everyone else, and the response is not comparable to the rest of the data pool. Responses to altered questions are rarely, if ever usable, and must be counted as invalid.

(D) Disposition of data prompt

Is this survey correct? Y/N. This message appears at the bottom of the screen after all data has been entered. If you are ready to store the data in the permanent data file, respond Y. If you need to correct errors in the current entry, respond N.

Ctrl-Enter (key combination). This message is displayed while you are entering data and allows you to store the current data record without moving the cursor to the bottom of the screen. This option is useful when editing or reviewing previously stored data records, since you can return the record to the data base while your cursor is at any point on the screen. (To use this key combination, press and hold the **Ctrl** key down, then press the **Enter** key. Release both keys at the same time.) Once a data record has been added to the permanent data file, you will be able to retrieve it at any time in the future.

Esc. At times you may want to erase the data record you are in the process of entering and start over or exit SpecEd. Pressing the **Esc** (escape) key will erase the information showing on the **Enter/Edit Data** screen from memory and return you to the **Main Menu** screen. You may then start over or exit SpecEd by pressing **Esc**.

NOTE: If you are editing a data record which has already been entered, the data displayed will be erased from memory only, the original data record remains unchanged in the data base.

SUMMARY

Entering New Data From Questionnaires

1. Survey Number - Press **Enter**, SpecEd will automatically assign and display a survey number. Write this number on the survey questionnaire for future reference.

2. Code Prompts - If your questionnaires have been precoded, type the demographic codes in the appropriate code fields and press **Enter**.

3. Response Prompts - Enter the numbers of the options circled on the questionnaire at the appropriate data entry prompts, then press **Enter**. If the respondent has failed to answer a question or has responded improperly, use the **No Response** code or **Invalid Response** code as entries for that question only.

4. Proofread the data you have entered. If errors are found, use the cursor movement keys to position the cursor under the incorrect entry and reenter the correct data, then press **Enter**.

5. Data Storage - When all data has been entered the **Is this survey correct? (Y/N)** prompt will appear. Respond Y to store the data record in the permanent data base.

Editing Data Records

1. Survey Number - type the number of the data record (survey) you wish to review or edit. Be sure to type leading zeros to make all numbers six digits long (000001). Press **Enter**. SpecEd will retrieve and display the data record information on the screen.

2. Use the cursor movement keys to position the cursor under the entry to be corrected.

3. Type the correct data and press **Enter**. The corrected entry will replace the incorrect data on the screen and in your computer's memory.

4. Store the corrected data record in the permanent data file by using the **Ctrl-Enter** key combination. The corrected data record will replace the old one.

ANALYZING DATA AND PRODUCING PRINTED REPORTS

Main Menu Option #: **2. Analyze/Print Selected Data**

During the data entry process, SpecEd identifies all of the information from an individual survey questionnaire as one data record, then stores each data record in a large data file. If you have entered data from 200 survey questionnaires, your data base will contain 200 data records. You choose which data records will be grouped together for analysis by instructing SpecEd to tag all data records which contain certain codes or question responses, that is **analysis criteria**. SpecEd will scan each data record and tag only those which meet all of your analysis criteria. The information contained in these data records is automatically compiled and printed for you.

You may develop your analysis criteria profile from:

1. Demographic codes (which may have been entered code fields #1 and #2 during data entry). Example: the demographic code criteria **R1** may represent and restrict analysis to data received from **R**ural areas in geographic region **1**.

2. Responses to survey questions 1 through 5. Example: choosing response option 1 for Question 1 would restrict analysis to information received from special education teachers.

3. Combinations of demographic codes and question responses. Example: Combining the above examples would restrict analysis to information received from special education teachers, from rural schools, in geographic region 1.

```
                    PANAMS - SpecEd
              Analyze/Print Selected Data Screen

1.A 1. Special Education Teacher

        Code #1: (A)                    Code #2: (A)

 1. A. major professional responsibility      B. Years of experience
(B) >1.< 2.  3.  4.  5.  6.  7.  8.               1.  2.

 2. Indicate the general education level of the children you serve
    1.  2.  3.  4.  5.  6.

 3. Exceptionality: majority of your students
    1.  2.  3.  4.  5.  6.  7.  8.  9.  10. 11. 12. 13. 14.

 4. Certification area: the area in which you currently are certified
    1.  2.  3.  4.  5.  6.  7.  8.  9.  10. 11. 12. 13. 14. 15.

 5. Areas you would most like training
    1.  2.  3.  4.  5.  6.  7.  8.  9.  10. 11.

Select Criteria : ↵ to select, Esc to abort, Ctrl↵ to continue
```

Using the Analysis Selection Screen

The demographic codes entered and options chosen on the analysis selection screen are used to limit the selection of data records used for analysis. That is, an analysis generated from the blank screen above would include all information in the data base because no selections, i.e. limitations, have been specified.

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Indicate your analysis criteria by:

(A) **Demographic Codes**

If you do not wish to restrict analysis to certain demographic groups, press **Enter** to skip the **Code Field** prompts. Demographic codes will not be considered part of your analysis criteria.

If you do wish to restrict analysis to certain demographic groups, type the appropriate codes for **Code Field #1**, then press **Enter**. Type the appropriate codes for **Code Field #2**, then press **Enter**. You may, of course, enter codes in one code field and skip the other.

Do be careful to type codes in the appropriate code field. Remember that the same character can be used to represent one analysis criterion in code field #1 and a very different criterion in field #2. SpecEd will look for a particular character code only in the code field you specify.

(B) **Question Response**

After the demographic codes have been entered, the cursor will automatically move to the **response selection prompt** for Question 1. For each question, 1 through 5, the numbers shown on the screen correspond to the response options offered on the questionnaire. When the cursor is positioned at a particular response option number, a cue reflecting questionnaire wording is displayed near the top of the screen.

If you do not wish to use response patterns to a particular question as part of your analysis criteria, use the cursor movement keys to skip over the selection options for that question and proceed to the next question. SpecEd will not use response patterns to the question you skipped as a guide when tagging data records for analysis.

If you wish to include only those people who responded in a certain way to a particular question, use the cursor movement keys to move the cursor to the appropriate response number (the symbols > and < on either side of the number, >1.<, mean that the cursor is positioned at that number), and press **Enter**. The response option you have selected will be highlighted, and only those data records containing that response will be tagged for analysis. Example: Selecting response option 1 for Question 1 will include all special education teachers, but will exclude all special education administrators.

You may select more than one response option for any question. Example: Choosing both options 1 and 2 for Question 2 will include all preschool and elementary grade respondents, but will exclude middle, secondary, postsecondary, and multiple level respondents.

Correcting selection errors. Return the cursor to the selection you need to remove and press **Enter**. The prompt will return to its original appearance and that selection will be removed from your analysis criteria.

Activating the analysis/printout. Press the **Ctrl-Enter** key combination to indicate that selections are complete. The **Is this information entered correct? : Y/N?** will be displayed. Respond **Y** to start analysis.

EXPORT DATA FILE TO ANOTHER SOFTWARE PACKAGE

Menu Option #: **3. Export Data to another Software Package**

The **Export Data** option is used to export a copy of each data record in your original SpecEd data file to a second file, named Speced.exp, in a format suitable for use with statistical programs such as SAS, SPSS, or with spreadsheet programs like Lotus 1-2-3. The Speced.exp file will be stored on the same disk drive and/or subdirectory as your original SpecEd data file. For dual floppy drive systems Speced.exp will be stored on the same diskette as your original SpecEd data file.

Before using the **Export Data** option, consult your statistical program's user's manual to determine which data format it requires, comma separated (data items separated by commas) or fixed record/standard data format (data items separated by blank spaces). SpecEd can produce a data file in either format.

Exporting Data to the Speced.exp Data File

1. The **Export Data Menu** offers two options.

   1. **Export data to a comma separated file format**

   2. **Export data to a standard data (fixed) record file format**

   Type the number of the option you wish to use (do not press **Enter**). The prompt for the option you have chosen will remain on the screen. The prompt for the option you did not choose will be erased.

2. The following prompt will appear:

   Do you wish to export this file? Y/N

   Type Y to have SpecEd export data to the new Speced.exp file. SpecEd will count the data records as they are exported and display the current count on the screen. When all records have been exported, the complete Export Data screen will be displayed.

   Type N to have SpecEd restore the complete Export Data screen without creating the new data file. You may choose a different export format and continue or exit the Export Data function.

3. Press the **Esc** key to exit the Data Export function and return to the Main Menu.

Copying Speced.exp to Another Subdirectory or Floppy Diskette

1. The new Speced.exp data file will be more convenient to use if you copy it to the same subdirectory as your statistical package or to a floppy disk which can be kept with your data file diskettes. The file copying process must be done at your computer's "system" level.

   A) Exit SpecEd by pressing the **Esc** key one or more times until the C:PA> prompt (or your computer's usual subdirectory prompt) appears.

   B) Type the change directory command **cd** and press **Enter**. Your computer's root directory prompt (usually C> or A>) will appear.

   Before copying Speced.exp, check your statistical program's user's manual for filename requirements, as filename changes can be made during the copying process. (For example, Lotus 1-2-3 requires that all data files have the extension .prn. Therefore, you would want to copy the filename Speced.exp from your PA subdirectory to the filename Speced.prn on your Lotus subdirectory.)

2. To copy Speced.exp to another subdirectory on your hard disk drive, use the following command format:

   C>copy \PA\speced.exp \new subdirectory\new filename

   For example: C>copy \PA\speced.exp \LOTUS\speced.prn

   To copy Speced.exp from one floppy diskette to another, insert the source diskette (the one with Spec.exp on it) in Drive A and a formatted target diskette in Drive B. Use the command format:

   A>copy a:Speced.exp b:new filename

   For example: A>copy a:Speced.exp b:Speced.prn

Importing SpecEd Data to Other Software

To use SpecEd data with other types of analysis software, it is necessary to know the arrangement of data fields within each data record. The following chart indicates the placement and size of each field.

Field #	Field Size	Data Contained in Field
1	6 char.	Survey Number
2, 3	6 char. each	Code Fields #1, #2
4, 5	1 char. each	Responses to Questions 1A, 1B

6-11	2 char. each	Responses to Questions 2-5
12-64	1 char. each	Responses to Question 6, items 1-53
65, 66	1 char. each	Response to Question 7, items 1, 2
67, 68	1 char. each	Responses to Question 7A, 7B
69	1 char.	Response to Question 9
70-72	1 char. each	Responses to Question 10
73-75	2 char. each	Responses to Question 11
76	2 char.	Response to Question 12

COPY/DELETE THE ENTIRE SPECED DATA FILE

Menu Option #: **4. Copy/Delete the Entire Data File**

In order to provide many automatic data management features while conserving valuable disk space, SpecEd automatically creates and manages a single data file for storage of all data records entered. Grouping of data records for analysis purposes is easily accomplished by entering appropriate codes in the code fields, then specifying those codes as analysis criteria. Over a period of several surveys, however, the data base can become quite large or become cluttered with obsolete data records.

If you are using a hard disk computer and your SpecEd data file is stored on the hard disk, the data file should be copied onto a floppy diskette for storage after survey analysis is completed. The copy of the data file remaining on the hard disk should be deleted before the next survey is begun. When an existing file is deleted, SpecEd automatically creates a new empty data file for your next survey.

If you are using a dual floppy drive computer or using hard drive computer but storing the SpecEd data file on a floppy disk, you must use a separate diskette for each data file.

Copying a Data File

Data file copying procedures are used to copy the SpecEd data file from a hard disk to a floppy disk for long-term storage and backup or to copy a data file from a floppy disk to the hard disk. Before copying a SpecEd data file to any disk drive, make sure that no other SpecEd data file currently exists on the target drive.

<u>Copy TO a Floppy Drive FROM your Hard Drive</u>:

NOTE: These instructions assume that you selected Drive C as the location of your data files when the SpecEd program was started.

1. The **Copy/Delete File** menu offers two options.

   1. **Copy Data File to Another Disk Drive**

   2. **Delete the Entire Data File**

   Select Option 1

2. SpecEd will prompt you for the letter of the drive (A or B) that the data file will be copied TO. Insert a formatted floppy disk in either Drive A or Drive B and type the letter of the drive at the **Copy to:** prompt.

3. The **Do you want to begin copying (Y/N)?** prompt will be displayed.

   Type Y to begin the copying process. SpecEd will produce an exact copy of the original data file on the floppy disk. The original file on the hard disk remains intact.

Type N to abort the Copy Data File procedure. The **Copy/Delete File** menu will remain on the screen and you can change the copying instructions or **Esc** to the **Main Menu.**

Copy FROM a Floppy Drive TO your Hard Drive:

NOTE: These instructions assume that you selected either Drive A or Drive B as the location of your data files when the SpecEd program was started.

1. The **Copy/Delete File** menu offers two options.

   1. **Copy Data File to Another Disk Drive**

   2. **Delete the Entire Data File**

   Select Option 1

2. SpecEd will prompt you for the letter of the drive that the data file will be copied TO. Be sure that the floppy disk which contains the file you want to copy is in either Drive A or Drive B (the one you chose as your file location when SpecEd was started) and that there is no SpecEd data remaining on your hard disk. Type the letter C at **Copy to:** prompt.

3. The **Do you want to begin copying (Y/N)?** prompt will be displayed.

   Type Y to begin the copying process. SpecEd will produce an exact copy of the original data file on your hard disk. The original file on the floppy disk remains intact.

   Type N to abort the Copy Data File procedure. The **Copy/Delete File** menu will remain on the screen and you can change the copying instructions or **Esc** to the **Main Menu.**

NOTE: The new SpecEd data file will replace any existing SpecEd data file in the **Copy to:** location. Be sure that any file existing on the disk you are copying to has already been copied to a backup diskette.

Deleting a Data File

SpecEd remembers the file storage location you chose (Drive A, B, or C) when the program was started. The data file at this location will automatically be deleted, you will not be prompted for the location of the data file.

1. The **Copy/Delete File** menu offers two options.

    1. **Copy Data File to Another Disk Drive**
    2. **Delete the Entire Data File**

    Select Option 2

2. SpecEd will not prompt you for the letter of the drive that the data file is on.

3. The **Do you want to continue with the deletion (Y/N)?** prompt will be displayed.

    Type Y to delete the SpecEd data file. All of the data in the data file in the location selected when SpecEd was started will be deleted and an empty data file will be created. The new empty data file is ready to be used for your next survey.

    Type N to abort the Delete Data File procedure. The **Copy/Delete File** menu will remain on the screen and you can change the copying instructions or **Esc** to the **Main Menu**.

MODIFYING SCREEN PROMPTS AND PRINTOUT WORDING

Menu Option #: **5. Modify Screen Prompts and Printout Wording**

SpecEd's data analysis software has been programmed to print screen prompts and printout labels which correspond to the wording for each question on the original SpecEd Survey Questionnaire. If the wording on the original questionnaire has been changed to meet your state's needs, you will want to change the wording of screen prompts and printed reports as well.

The **Modify Screen Prompts and Printout Wording** screens (see below) display the screen prompt/printout label for each possible response to each question.

```
                              PANAMS - SpecEd
                  Planning a Needs Assessment Management System

> 1.A 1. Special Education Teacher                          <
  1.A 2. Special Education Administrator
  1.A 3. Other
  1.A 4. Other
  1.A 5. Other
  1.A 6. Other
  1.A 7. Other
  1.A 8. Other
  1.B 1. Two or Less
  1.B 2. More Than Two
  2.  1. Preschool
  2.  2. Elementary
  2.  3. Middle School/Junior High
  2.  4. Secondary/High School
  2.  5. Post Secondary
  2.  6. More than one of the above
  3.  1. Mildly Mentally Handicapped
  3.  2. Moderately Mentally Handicapped
  3.  3. Severely Profoundly Mentally Handicapped

Select Response to Edit  .   PgUp, PgDn, Esc)ape to Main Menu, ↵ to Select
```

To change the wording for an individual question:

1. Use the up/down cursor movement keys to position the option cursors (> < symbols) around the wording to be changed (i.e. > 1. Special Education Teachers <). Press **Enter**. The color intensity of the option you have chosen will change to indicate that the text is ready for editing. The PgDn and PgUp keys may be used to skip to the next screen or return to a previous screen.

2. Use the right/left cursor movement keys to move the typing cursor (__) to the point where you want to begin changing the wording.

3. Type the wording you want to use. Press **Enter** to save the new wording. The color intensity will change again to indicate that the new wording has been saved.

   NOTE: The < cursor symbol represents the right margin for each option. It may be necessary to abbreviate or paraphrase exact question wording to fit in the available space.

4. When all wording changes have been made, press **Esc** to return to the **Main Menu.**

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SURVEY OF SPECIAL EDUCATION PERSONNEL
In-Service Training and Staff
Development Needs

Please complete the following survey. The information obtained will determine personnel needs for inservice training and staff development.

1. A) INDICATE YOUR MAJOR PROFESSIONAL RESPONSIBILITY BY CIRCLING THE NUMBER CORRESPONDING TO THE MOST APPROPRIATE POSITION TITLE. [THINK ABOUT THE ONE POSITION THAT OCCUPIES MOST OF YOUR TIME.] (Select One)

1. Special Education Teacher	5.
2. Special Education Administrator	6.
3.	7.
4.	8.

B) YEARS OF EXPERIENCE

1. Two or Less
2. More than Two

2. INDICATE THE GENERAL EDUCATION LEVEL OF THE CHILDREN YOU SERVE BY CIRCLING THE NUMBER CORRESPONDING TO THE MOST APPROPRIATE CATEGORY. (Select One)

1. Preschool
2. Elementary
3. Middle School/Junior High
4. Secondary/High School
5. Post Secondary
6. More than one of the above

3. EXCEPTIONALITY: PLEASE CIRCLE THE NUMBER CORRESPONDING TO THE ONE EXCEPTIONALITY WHICH CONSTITUTES THE MAJORITY OF YOUR STUDENTS. (Select One)

1. Mildly Mentally Handicapped
2. Moderately Mentally Handicapped
3. Severely/Profoundly Mentally Handicapped
4. Learning Disabled
5. Behavior Disordered/Emotionally Disturbed
6. Other Health Impaired
7. Hearing Impaired/Deaf
8. Multi/Physically Handicapped
9. Speech/Language Impaired
10. Visually Impaired/Blind
11. Deaf-Blind
12. Early Childhood/Preschool (Noncategorical)
13. Other Noncategorical
14. Other _____

4. CERTIFICATION AREA: PLEASE CIRCLE THE NUMBER CORRESPONDING TO THE AREA IN WHICH YOU CURRENTLY HOLD CERTIFICATION. [IF YOU ARE CURRENTLY CERTIFIED IN MORE THAN ONE AREA, PLEASE INDICATE THE ONE MOST CLOSELY ASSOCIATED WITH YOUR CURRENT TEACHING ASSIGNMENT.] (Select One)

1. Mildly Mentally Handicapped
2. Moderately Mentally Handicapped
3. Severely/Profoundly Mentally Handicapped
4. Learning Disabled
5. Behavior Disordered/Emotionally Disturbed
6. Other Health Impaired
7. Hearing Impaired
8. Multi/Physically Handicapped
9. Speech/Language Impaired
10. Visually Impaired/Blind
11. Deaf-Blind
12. Deaf
13. Early Childhood/Preschool (Noncategorical)
14. Other Noncategorical
15. Other _____

5. INDICATE THE THREE (3) AREAS IN WHICH YOU WOULD MOST LIKE TRAINING BY CIRCLING THE APPROPRIATE NUMBERS. (Select Three)

1. Assessment (Identification procedures, diagnosis, making placement decisions, team evaluation procedures, instructional planning).
2. Due Process (Procedural safeguards, surrogate parents, confidentiality, legal responsibilities).
3. IEP Development (Writing objectives, determining content involvement of regular educators, fostering parent participation).
4. Educational Programming (Teaching strategies, selecting and modifying content of materials, management procedures for organizing instruction and student management techniques).
5. Educational Administration (Administering programs, management strategies, staff/personnel issues).
6. Service Delivery (Regular and special education cooperative planning, availability of services for a free and appropriate education, assuring instruction in the least restrictive environment).
7. Parent Involvement (Communicating with parents, parent participation in conferences).
8. CSPD (Comprehensive System of Personnel Development; creation of local systems for delivery of staff training programs relevant to personnel needs, motivational techniques to participation in staff development activities, obtaining qualified persons to conduct inservice programs).
9. Compliance/Services (Standards to be met by local and state education agencies, teacher's role in meeting compliance/services requirements, techniques to aid teachers in meeting and/or supporting compliance/services responsibilities).
10. Other _____
11. Other _____

6. FOR EACH SUBJECT AREA, PLEASE INDICATE YOUR LEVEL OF NEED FOR ADDITIONAL TRAINING BY CIRCLING THE NUMBER WHICH BEST FITS YOUR RESPONSE.

RESPONSE SCALE: 4 = GREAT, 3 = SOME, 2 = LITTLE, 1 = NONE

Need Great-None		
		AREA: Assessment
4 3 2 1	1.	Understanding and using the multi-disciplinary team approach to assessment and planning
4 3 2 1	2.	Assessing special education students' instructional levels: strengths and weaknesses
4 3 2 1	3.	Assessing special education students' behavioral levels: strengths and weaknesses
4 3 2 1	4.	Using non-discriminatory assessment techniques
4 3 2 1	5.	Completing due process checklists
4 3 2 1	6.	Evaluating student progress across disciplines and using data to improve programs
4 3 2 1	7.	Clarifying and using program area criteria for placement purposes
4 3 2 1	8.	Providing increased justification for placement decisions
4 3 2 1	9.	Implementing Child Find/Serve procedures to identify unserved and inappropriately served exceptional students
4 3 2 1	10.	Other _____
		_____
4 3 2 1	11.	Other _____
		_____
		AREA: Due Process
4 3 2 1	12.	Understanding responsibilities in implementing PL 94-142
4 3 2 1	13.	Understanding the state special education procedural safeguards
4 3 2 1	14.	Understanding and using due process and procedural safeguards
4 3 2 1	15.	Understanding procedures for maintaining confidentiality of student records
4 3 2 1	16.	Understanding and using due process for non-LEA placement

Need Great-None

AREA: Due Process (Cont.)

4 3 2 1 17. Preparing federal and state data reports on students served

4 3 2 1 18. Other _____

_____

4 3 2 1 19. Other _____

_____

AREA: IEP (Individual Education Plan)

4 3 2 1 20. Developing IEP's

4 3 2 1 21. Strengthening the content of IEP's

4 3 2 1 22. Implementing IEP's in the regular classroom

4 3 2 1 23. Incorporating state graduation requirements into the secondary IEP

4 3 2 1 24. Writing measurable goals and objectives based on individual students' needs

4 3 2 1 25. Determining and applying criteria for mastery of IEP objectives

4 3 2 1 26. Other _____

_____

4 3 2 1 27. Other _____

_____

AREA Educational Programming

4 3 2 1 28. Designing alternate teaching strategies for students with learning problems

4 3 2 1 29. Developing and using alternative instruction strategies, technology, media and materials

4 3 2 1 30. Assistance in development of teacher made materials

4 3 2 1 31. Locating and using high interest-low vocabulary material for all content areas

4 3 2 1 32. Locating and using sequential materials appropriate to student's developmental level

4 3 2 1 33. Structuring classrooms for appropriate instruction

4 3 2 1 34. Behavior management techniques that will facilitate learning for the special education student

4 3 2 1 35. Managing students who are on medication or who are medically fragile

4 3 2 1 36. Incorporating career education into curriculum activities

4 3 2 1 37. Incorporating leisure education into curriculum activities

4 3 2 1 38. Other _____

_____

4 3 2 1 39. Other _____

_____

AREA: Educational Administration

4 3 2 1 40. Awareness of services available in the local community for the special education student

4 3 2 1 41. Facilitating the social interaction of the special education student by placement into chronological age- and culturally appropriate programs

4 3 2 1 42. Methods for assisting special education and regular education teachers in working together to maximize learning for the student with a handicap

4 3 2 1 43. Assisting exceptional students in making transitions (i.e. preschool to school, separate facility to public school, school to the world of work)

4 3 2 1 44. Designing and implementing programs for early intervention

4 3 2 1 45. Other _____

_____

4 3 2 1 46. Other _____

_____

6.

Need Great-None		AREA: Parent Involvement
4 3 2 1	47.	Conducting conferences with parents whose children are being considered for special education placement
4 3 2 1	48.	Achieving parent participation in program planning for their child with a handicap
4 3 2 1	49.	Defusing potential conflict situations with parents
4 3 2 1	50.	Handling conflicts with parents
4 3 2 1	51.	Providing information and training programs for parents
4 3 2 1	52.	Other _____
4 3 2 1	53.	Other _____

7. RATE EACH OF THE FOLLOWING ACCORDING TO YOUR AND YOUR COLLEAGUES' NEED FOR THE SCHOOL SYSTEM TO IMPROVE: [CIRCLE THE NUMBER WHICH BEST FITS YOUR RESPONSE.]

Need Great-None		
4 3 2 1	1.	Development and implementation of a local system plan for providing a comprehensive staff development program
4 3 2 1	2.	Local system commitment to encourage participation in staff development activities through incentives

8. A) WOULD YOU BE WILLING, WITHOUT FINANCIAL REIMBURSEMENT, TO ATTEND INSERVICE TRAINING AND/OR PERSONNEL DEVELOPMENT ACTIVITIES OUTSIDE REGULAR SCHOOL HOURS?

1. YES
2. NO

B) IF YES, HOW MANY HOURS PER MONTH WOULD YOU BE WILLING TO SPEND?

1. 1-3 hours per month
2. 4-6 hours per month
3. 7-9 hours per month
4. 10-12 hours per month
5. More than 12 hours per month

9. WHICH OF THE FOLLOWING WOULD BE THE BEST FORMAT FOR YOU TO RECEIVE STAFF DEVELOPMENT TRAINING. [CIRCLE THE NUMBER CORRESPONDING TO YOUR CHOICE .] (Select One)

1. Summer Courses
2. Conference/Workshop Courses
3. Evening/Weekend Courses
4. Self-paced Instructional Materials
5. Other

10. IN YOUR OPINION, WHICH OF THE FOLLOWING WOULD BE THE MOST EFFECTIVE RESOURCES FOR PROVIDING INSERVICE TRAINING/STAFF DEVELOPMENT ASSISTANCE IN THE TRAINING AREAS YOU NEED? [CIRCLE THE NUMBERS CORRESPONDING TO YOUR CHOICES.] (Select Three)

1. Graduate Course or University/College Level Program
2. Learning Resource Center
3. Local School Personnel and Resources
4. Cooperative Education Service System
5. State Department Specialists
6. School District Specialists
7. Trained University Personnel
8. Consultants
9. Other _____

11. WHICH OF THE FOLLOWING INCENTIVES WOULD INCREASE YOUR MOTIVATION FOR PARTICIPATING IN STAFF DEVELOPMENT ACTIVITIES. [CIRCLE THE NUMBERS CORRESPONDING TO YOUR CHOICES.] (Select Three)

1. Salary Step Credit
2. Travel Reimbursement
3. Tuition Payments
4. Payment or Waiver of Conference/Workshop Fees
5. Payment for Evening/Weekend Attendance
6. Payment for Books or Materials
7. Academic Credit
8. Increasing Knowledge Base
9. Released Time from Classroom Teaching
10. Summer Activities with Extended Contract
11. Certificates of Training in Personnel Files
12. Promotion of Personal and Professional Files

12. PLEASE SELECT THE ONE AREA WHICH YOU ANTICIPATE WILL BE YOUR HIGHEST TRAINING NEED FIVE OR MORE YEARS FROM NOW. (Select One)

1. Assessment
2. Due Process
3. IEP Development
4. Educational Programming
5. Educational Administration
6. Service Delivery
7. Parent Involvement
8. Comprehensive System of Personnel Development (CSPD)
9. Compliance/Services
10. Other _____

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